largest architectural circulation in the world

11

november 1950

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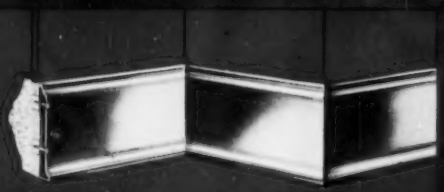
PROGRESSIVE ARCHITECTURE



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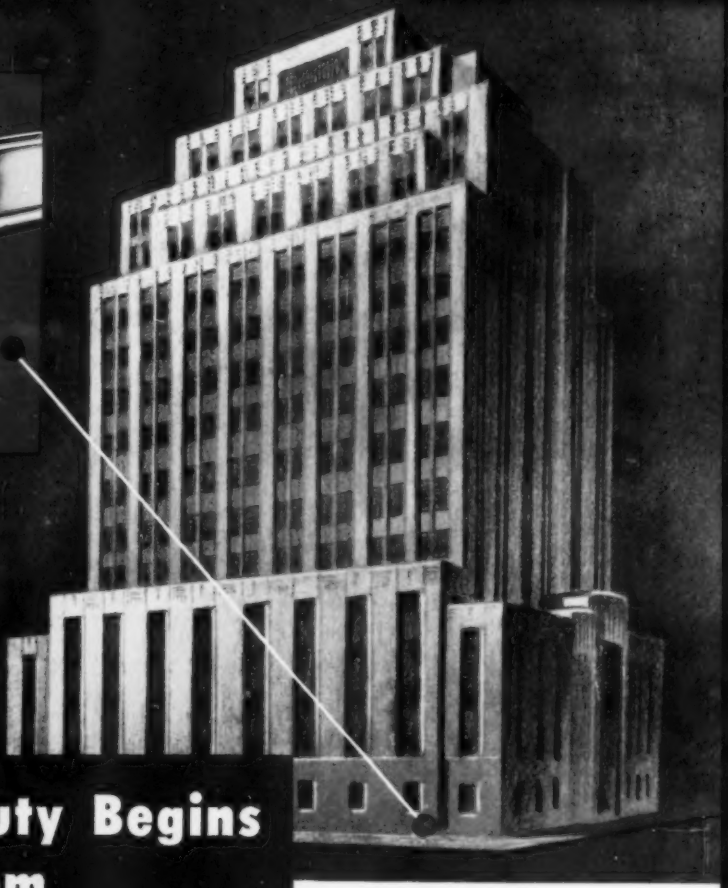

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PROGRESSIVE ARCHITECTURE

newsletter

NOVEMBER 1950

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- Since last Newsletter a National Production Agency has been set up in the Dept. of Commerce to administer any priority, allocation and inventory controls that may be instituted. Head of the new agency is William Henry Harrison, on leave from his job as President of International Telephone and Telegraph Corporation. Powers given the Dept. and allocated to the Agency allow them to direct diversion of "certain materials and facilities from civilian use to military and related purposes." Secretary Sawyer says these powers will be used "only as it becomes necessary."

- A number of architects are interested in possibilities of commissions coming out of government agencies. There are jobs to be given out; most of them have to be obtained locally, however. Following are brief reports on some of the government programs.

- Urban redevelopment aspect of national housing act is going ahead well. Applications are being received, processed, analyzed. A number of architects are doing outstanding work in visualization of early redevelopment studies.

- Federal hospital construction program has by now settled down into well-established routine and is producing needed facilities in all parts of the country. Architects who have participated seem generally happy with the program.

- Big hitch that has developed in this program, however, is cutting in half of funds which had been allocated but not yet authorized. This badly embarrasses many local programs, and protests have poured into Budget Director's office and to many Congressmen and Senators.

- Public Buildings Administration, now under General Services Administration, is engaged in land, cost and survey studies for new public structures, as recently authorized by Congress in Public Law 1051. This work will soon be ready to give out to private architectural firms, and, although it is not large in volume, it may be welcome to some practitioners whose usual activities have been slowed up.

- PBA work is given out on a negotiated fee basis to local firms, all of whom are circularized when a local project develops. No prior applications are accepted in the Washington office. Standards and manuals of procedure are supplied to the architects, and work is paid for as design steps are accomplished. PBA does the supervision.

- Dispersal program which has recently had much publicity -- scattering of government offices, both in and out of Washington -- will be accomplished entirely by PBA. Buildings being considered are said to be technically interesting, but some observers are worried that security reasons may cause secrecy and permit overlooking of city-plan problems.

(Continued on page 2)

- U.S. Engineers and Bureau of Yards and Docks are definitely and gratefully accepting applications from private architectural firms. Unlike PBA work, these jobs, which are increasing in number, are given out on a basis of applications already filed. Applications and brochures should be filed with regional offices, from where selections are made. It is understood that some 1500 applications are on file with U.S. Engineers offices, somewhat fewer with Yards and Docks.

- Great Lakes Regional Seminar of A.I.A. will be held Dec. 1 and 2 at South Bend, Indiana. N.Y. State Ass'n. Convention is to be in Syracuse, Nov. 2 to 4. Louisiana Architects' Ass'n will meet Nov. 9 to 11 in New Orleans. An exhibit of Gulf Coast contemporary work will be shown. Scarab Architectural Fraternity is holding a convention in Cincinnati Nov. 19 to 21.

- Appointment of G. Holmes Perkins, Harvard Professor, to deanship of U. of Penna.'s School of Fine Arts has been announced. Perkins succeeds George S. Koyl, who retired from post last spring. Rumors now place Pietro Belluschi's name top among possibilities as M.I.T. dean, to succeed William W. Wurster.

- Isadore Rosenfield has been appointed visiting critic in graduate design at Columbia School of Architecture. He will present a hospital planning program with variations both as to climate and as to luxury of facilities.

- Next BRAB Conference will be on November 21 in Washington, on subject of "fire resistance of load bearing walls."

- Compilation of 44 graphical symbols for heat-power apparatus compiled by American Standards Association, 70 E. 45 St., N.Y., N.Y., is available from that source at 35¢ a copy.

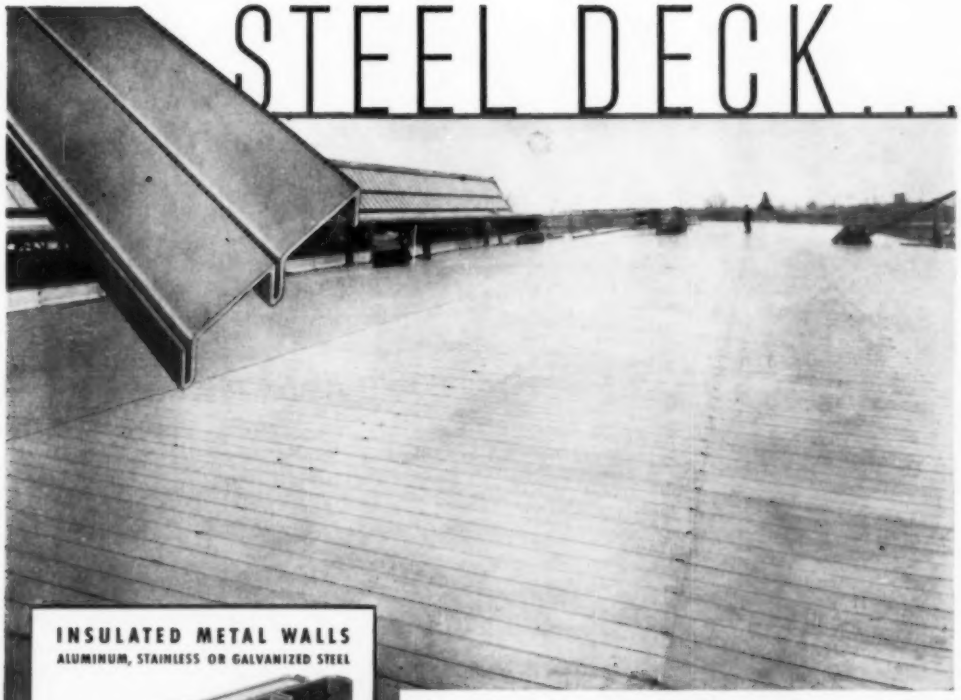
- New edition of Building Exits Code issued by American Standards Association -- available for $1.00 a copy from A.S.A., 70 E. 45 St., N. Y. 17, N. Y. -- increases permissible distance to exits in fire-resistive hotels partially protected by sprinklers from 100 feet to 150 feet. Strong recommendation is made for horizontal exits and use of smoke barriers and fire walls. Other changes concern transoms and manually operated fire alarm systems.

- A.I.A. Convention in Chicago next spring will have an exhibit of building products, chosen on a selective basis. Title of the exhibit will be "New Values," and not more than 50 products which are new and which offer improved construction at moderate cost will be displayed.

- Crane Co. has joined Revere Copper & Brass in sponsorship of the Quality House Program of Southwest Research Institute. Southwest has been appointed technological research facility for the Southern Building Code Congress.

- Architects in Milan, Italy, are making plans for the Ninth Triennale which will be held there spring to autumn next year. The themes this year will be art in common life, and the collaboration of architecture and allied arts. Several exhibitions will feature modern architectural and modern decorative and industrial arts.

STEEL DECK...



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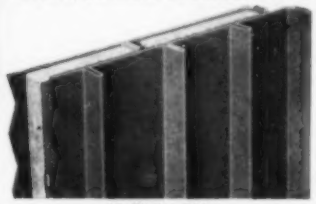

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Mahon Insulated Metal Wall Plates are available in several designs—two are illustrated above. Plates can be furnished in any length up to 55 ft. Heat Transmission Coefficient "U" rating 0.15 with only two inches of Fiberglas Insulation.

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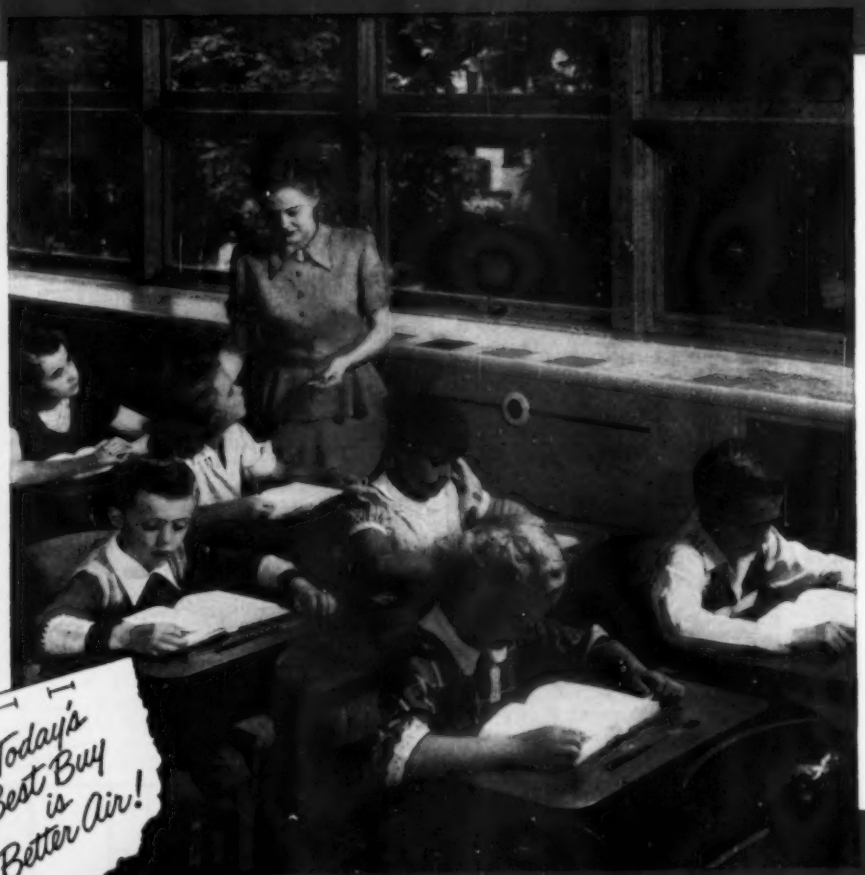

in schoolroom ventilation in twenty years

Draft|Stop is the dramatic new system* of schoolroom ventilation designed by Herman Nelson engineers to insure greater classroom comfort and better student health. Architects and engineers responsible for the design of modern school buildings will recognize this entirely new concept of ventilating and heating the classroom as the answer to a problem posed by the trend toward more and more window area.

Draft|Stop literally feeds on drafts—drafts caused by cold air and leakage at the windows. With Draft|Stop Ventilation all sources of drafts are controlled. For the first time, all cold air or air introduced into the schoolroom is processed by the Herman Nelson Draft|Stop System.

Draft|Stop is new! Draft|Stop is entirely different! Draft|Stop will be hailed by architects and engineers as the first fundamental improvement in schoolroom ventilation in twenty years. Certainly there have been minor changes and advances in unit ventilators during this time. In fact, Herman Nelson has pioneered most of these. But now, the introduction of Draft|Stop Ventilation achieves the ideal in modern classroom comfort—a classroom free of drafts—a classroom with atmosphere which inspires rather than retards the learning process.

From the days of the "little red schoolhouse" to the present, proper classroom heating and ventilating has been a major factor in pupil comfort and efficiency. Since 1918, when Herman Nelson manufactured the first unit ventilator—a type of equipment that is being used in most schools being built today—Herman Nelson engineers have been foremost in solving school ventilating problems.

As Herman Nelson pioneered when the science of ventilation was in its infancy, so now it pioneers when the modern design of school buildings make proper air treatment a prime factor.

Schools you are now designing may be obsolete before they are off the drafting boards. Complete information, however, is now available on Draft|Stop. Send your requests today to Dept. PA-11.

**Patent Pending*

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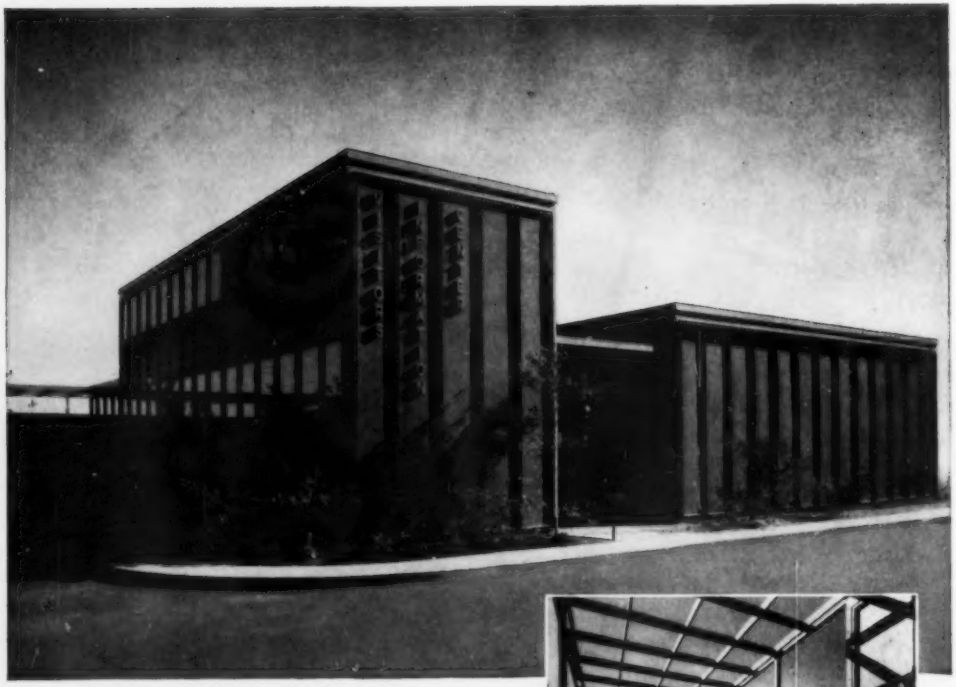
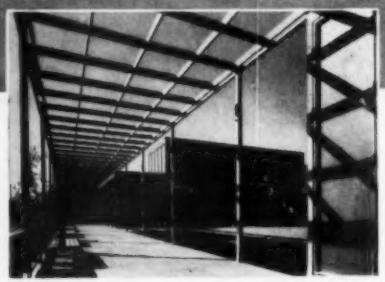




Attractive planning of outdoor areas is exemplified by this corridor connecting the public block and the garden equipment room. Decorative paneling is further emphasized by the use of bold color—deep greenish blue for the plywood panels, pale sea-green for the stops, blue-black for the exposed edges of the 2x6's. Doors are a deep wine red.

Structure Becomes Design When You Work With Douglas Fir Plywood

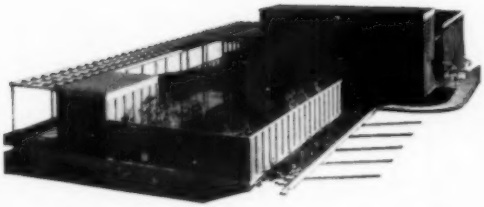
TYPICAL of the simplification of approach possible with plywood is this striking Visitors Information Center of the Portland Chamber of Commerce.

Erected in the spring of 1948, this unusual, award-winning building takes full advantage of plywood's unique characteristics. The structural strength and rigidity of the panel material made possible a design both simple and effective—without unnecessary elements of either structure or design.

It is just one of many examples of Douglas fir plywood's contribution to a fresh, new architectural concept.

Douglas Fir Plywood

AMERICA'S



View looking down shows arbor-covered terrace and walled garden separating larger public block from the garden equipment building at lower left. Public areas consist of a lobby surrounding an information counter, two exhibit rooms, rest rooms. Staff areas provide a manager's office, conference room, and an attendant's office behind the information counter. The second story contains storage and work space.

The pleasing simplicity of design is carried inside, where smooth plywood walls offer dramatic contrast to the alternating-grain floor and ceiling treatment.

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INTERIOR - TYPE
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PlyPanel is the "one-side" grade of interior-type plywood—for real wood paneling, cabinets, built-ins. Provides a smooth, firm underlayment for wall-to-wall floor coverings, too.

For complete data on Douglas Fir Plywood, including information on other grades, see Sweet's File, Architectural, or write for basic catalog—sent free to any part of the United States. Just write any of the offices listed at the left.

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VIEWS

goodbye, mr. kaufmann

dear editor: the best thing about not renewing a magazine subscription is that you receive lots of mail about it. this mail reprimands, gently insists, suggests, pleads, threatens, covers up, asks, and carries with it a great aura of optimism. it makes interesting reading in itself, if you are endowed with a great amount of patience. but it never believes for a moment that anyone should actually intend to discontinue his subscription, as is the case with me. am i dissatisfied with editorial opinion? with content? with pictorial reporting? i should say not. indeed, if anyone is interested in my opinion, i shall gladly write a testimonial to the progress *progressive architecture* has made over the years that i have subscribed to it. but the hard fact is nevertheless that i want to discontinue my subscription. your letters, clever in their approach, have been trying to pry my secret from me. why? why? must i reveal my innermost confidences to you? must i show you my weekly budget and the hard, cold figures which point to the fact that it's either *progressive architecture* or two meals a day, and i'm a big eater? must i tell that i have exhausted my credit capacity, now that the finance company has come and taken my t-square from me as security? or that my mother refuses to support a subscription for another year because she is threatened by divorce and must look out for herself? or that i am really frustrated because i have been out of school a whole year now and still haven't had a thing published in p/a? no, indeed! i have a private life, and i will live it. therefore, you won't ever know that i read my boss's copy of p/a which always arrives either before or after my own, and carries the same contents, so that my own copy ends up with my neighbor's wife who is beautiful but dumb and can't read but just loves to look at pictures of modern buildings. and now that she has run off with the bricklayer down the street who always gave her the *forum* (he also runs a cadillac convertible), what's the use of living? no, sir—i won't tell a word. *some* things must be sacred! i'll just cancel, and as far as you're concerned there's no reason. but keep on sending the letters anyway, because they give good heat in the wintertime. and guess! guess!! guess!!! statistically, people like me don't exist . . . i must have been negligent, and don't you forget it for a second! mysteriously yours,

axel kaufmann
boston, mass.

LUNAR OBSERVATION

Dear Editor: Caleb Hornbostle's recent lunar reflections (VIEWS, September 1950 P/A) would seem to open up vast avenues of literary and scientific endeavor for the editor and staff of P/A as well as for architects everywhere. However, until this problem of nocturnal lunar control has been adequately dealt with and Hornbostle has had the opportunity to further elucidate, we readers and architects, I fear, are left with a grave feeling of uncertainty and even misapprehension due to the extreme lack of available information on moon control.

For one thing Hornbostle's statement that the moon follows "more or less in a horizontal plane" is one which might evoke, in some, a certain amount of dismay. I, for one, have never observed the moon to do this and should like to know on what days the phenomenon falls due.

Again in his "final statement" Lunologist Hornbostle remarks that "the penetrating white light of the moon cannot be easily shut out, and it does definitely discourage sleep." If this had been the entire statement I believe it would have presented the pith of the problem correctly, but the author unfortunately adds to this sentence the subordinate clause; "unless the drapes are very thick." This clause, I submit, is confusing to the main issue at hand and should be expunged, as otherwise one is led to suppose that the problem of moon control can be solved by the use of draperies or even, in extreme cases, by the common shade or window blind.

GEORGE W. CONKLIN
Hartford, Conn.

Dear Editor: . . . In the September issue Caleb Hornbostel's letter dealing with moon control was very interesting. Please publish more information on this subject.

CLYDE HONEYCUTT
High Point, N. C.

SINCERE CRITICISM

Dear Editor: As I am just a student of architecture at present, I'm not exactly qualified to express my views on your recent August issue. But, I just couldn't help writing and telling you what a wonderful and exciting issue it was.

I personally believe that the Round-Robin Critique is one of the finest articles in your magazine, and your choice of outstanding contemporary architects such as Stubbins, Rudolph & Twitchell, Granger & Fehr, and Gordon Drake shows your staff is (really on the ball) obtaining the best examples of contemporary work. Another point I enjoy in the Round-Robin Critique is the sincere approach and criticism one architect gives to the other. Many of these points of criticism are easily missed by the reader unless he very carefully studies each point of the presentation.

As to your question, do we want more of them? I for one would like to see similar articles in every issue, with the same caliber and discretion in your choice of work. I know these articles are valuable to students because they help us to adopt the proper methods of analysis in criticizing our own student work and other professional work. They also help to point out the many little mistakes which we should be on the lookout for in designing good contemporary architecture.

Now, to dwell a minute on how you might improve your Round-Robin Critique. Your choice in selecting work of various income brackets is just fine, but in addition to this I was wondering if it would not be possible to include a Cost Breakdown schedule with every Round-Robin example? For this Cost Breakdown schedule, I believe, is essential in showing just what money was spent in the various trades such as masonry, carpentry, heating, etc., and it also helps show where the architect was able to cut cost and save money. Along with this cut costs idea, it would be interesting to see maybe a detail or explanation of how the architect was able to accomplish this saving; or even if he used a new type or use of material, or a new and different method of construction, it would be enlightening to have a little more explicit explanation.

In closing I would like to compliment you and your staff on the terrific job you did in presenting, in my humble opinion, one of the finest issues P/A has ever assembled.

SAMUEL E. MINTZ
Detroit, Mich.

p/a

NOTICES

NEW PRACTICES, PARTNERSHIPS

WILLIAM CHARNEY VLADECK and SEYMOUR R. JOSEPH announce their association under the firm name of JOSEPH & VLADECK, Architects.

HARRY C. KLINE, JR., Industrial Designer, has opened new shops and offices at 49 Virginia Pl., Buffalo, N. Y., for the making of industrial scale models for architectural, engineering and industrial firms.

HAROLD E. DIAMOND, Architect, announces the opening of his office for the practice of architecture at 150 Bay St., Staten Island 1, N. Y.

HOWARD W. TUTTLE, H. JAMES HOLROYD, and RICHARD N. MATHENY announce the formation of the partnership TUTTLE, HOLROYD & MATHENY for the general practice of architecture at 3201 W. Broad St., Columbus 4, Ohio.

NEW OFFICE

ELEANOR PEPPER, Associate, New York Chapter A.I.A., announces the opening of her office as Consultant, Interior Design and Finishes, 150 E. 55 St., New York 16, N. Y.

NEW ADDRESSES

JONES & MOWBRAY, Architects, P.O. Box 201, Guilford, Conn.

JOSEPH O. CEZAR, Architect, 5618 N. Keystone, Indianapolis, Ind.

WILLIAM S. MORRIS, Architect, 1647 S. Robertson Blvd., Los Angeles, Calif.

CECIL A. MARTIN, Architect, 503 Karbach Block, 15 and Douglas, Omaha, Nebr.

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NEW APPOINTMENTS

The appointment of ISADORE ROSENFIELD, New York architect and hospital consultant, as a visiting critic in graduate design at the Columbia University School of Architecture has been announced by Dean Leopold Arnaud. Mr. Rosenfield will teach at the University's winter session beginning in September.

RUDOLF FRANKEL, Architect, has accepted the position of Professor of Architecture at the Miami University, Oxford, Ohio.

CORRECTION

The price of *Heavenly Mansions* by John Summerson, published by Charles Scribner's Sons, which was reviewed in June 1950 P/A (p. 124), was noted as $1.75, the English price. The book sells here for $5.

Used with the Rixson Uni-Check, the Multi-Point Door Holder No. 37 offers an unsurpassed installation for doors which require several points of hold-open. Upon quick release by a slight manual opening of the door, it returns to closed position under control of the hydraulic checking device. Almost any number of positive hold-open points desired may be furnished.

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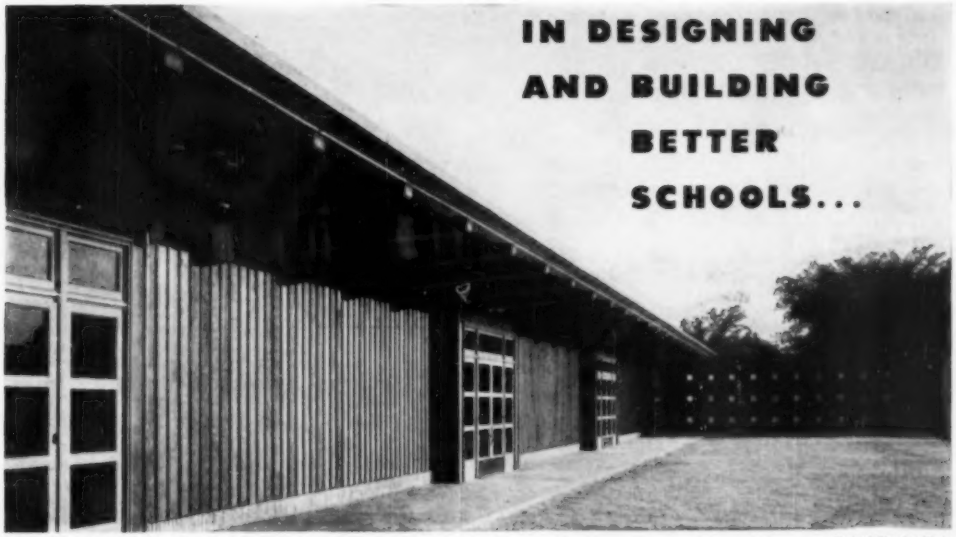
NEW YORK—Fred G. MacKenzie, 107 Beade St., Tel. Barclay 7-6852.
PHILADELPHIA—G. Morris Williams, 211 Greenwood Ave., Wyncote, Pa., Tel. Ogontz 1929.
SEATTLE—S. G. Kirkland, 845 Bellevue Ave., North, Tel. EAst 8855.
WASHINGTON, D. C.—L. R. Anderson, 4318 Beechdale Ave., Bethesda, Md., Tel. Oliver 4873.



CROW ISLAND SCHOOL, Winnetka, Ill. Saarinen & Saarinen and Perkins, Wheeler & Will, *Architects.*

Hedrich-Blessing Photo

specify WEST COAST WOODS

DOUGLAS FIR • WEST COAST HEMLOCK • WESTERN RED CEDAR • SITKA SPRUCE

Use wood to advantage in any type of school

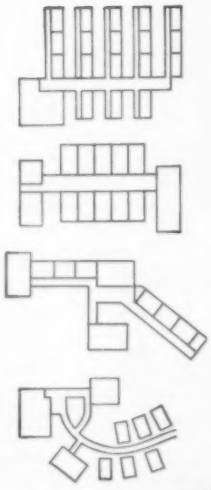
Examples of wood's adaptability are shown by these diagrams of some of today's modern schools of one-story wood construction.

FINGER or "tree" type school; rooms oriented to sunlight on trunk corridor and branches; may be extended easily.

CENTRAL CORRIDOR construction; rooms connected to straight-line corridors; short communications lines.

DOUBLE WING plan, with lines of classrooms branching off from a central hub of school buildings.

CAMPUS plan, with various classrooms and buildings connected only by sidewalks.



You add the utmost in economy, practicability, durability, flexibility and beauty to the best construction plans when you specify *wood* — especially the four quality West Coast Woods species. With this *time-tested* building material you also build wood's inherent qualities of friendliness and warmth into school structures.

Schools of quality construction — with highly functional classrooms that are inviting, healthy and safe — may be built quickly of wood. And you can be sure of community acceptance of a school of wood, as it may be designed to any setting, can be planned to fit the needs of teachers and students alike. Small wonder that more and more school buildings are being built of wood.

There's a RIGHT WAY to do everything...Build RIGHT with

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Please send free copy of "Today's Better Schools Are Built of Wood".

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p/a

NOTICES

(Continued from page 10)

FORUM AT LEAGUE

The Architectural League of New York is conducting a subscription series of discussions of the arts, architecture, and planning on 10 Wednesday evenings, beginning October 11 and concluding December 13. Olindo L. Grossi, chairman of the Education Committee which is sponsoring this series, entitled "Forum for Modern Living," has announced that the discussions will be led by panels, totaling some 60 recognized authorities on the arts, architecture, landscape architecture, and planning.

The forum topics and key speakers for each will include: "Can the Arts Work Together?" by Joseph Hudnut; "Must Our Architecture Be Sterile?" by Wallace Harrison; "Sculpture and Building" by William Zorach; "Painting as Decoration" by Amadee Ozenfant; "Is Furniture Functional or Decorative" by George Nelson; "The Architect and Industrial Designer" by Walter D. Teague; "New Textiles and Wall Coverings" by Mary Roche; "Purpose of Landscape Architecture" by Alfred Geiffert, Jr.; "Lighting and Color in the Home" by Richard Kelly; and "A Look Into the Future" by Hugh Ferris. The other members of each panel will include authorities and critics chosen to offer supplementary and opposing views.

SPECIFY THE *Sedgwick* ELECTRIC UNDER-COUNTER ROTO-WAITER

for { SAFE / DEPENDABLE / ECONOMICAL } UNDER-COUNTER DUMB WAITER SERVICE

Where space limitations or service needs require an electric dumb waiter installed under a counter . . . in a back bar . . . or in a cabinet — in drug stores, groceries, markets, restaurants, cafeterias, soda fountains — the Sedgwick Under-Counter Roto-Waiter provides the ideal solution. The unique roto-drive principle eliminates the possibility of over-travel and allows every inch of available height to be used safely. The outfit is self-contained, requiring fastening — but no support at the upper floor level. Its compact machine, occupying but a minimum of space in the basement, is placed *at the side* of the equipment, where it is easily accessable for inspection and lubrication — and where it will not be subject to the service disorders so often caused by accumulated dirt, spillage or drainage.

COMPLETE SEDGWICK LINE MEETS EVERY REQUIREMENT

In addition to the Sedgwick Under-Counter, and regular two-stop Roto-Waiters, Sedgwick also builds Multi-Stop Electric Traction Dumb Waiters for three or more landings — with a wide selection of specially engineered control equipment and signal systems to suit individual needs. Other Sedgwick Dumb Waiters — including both electrically and manually operated types — are likewise available in a wide range of sizes and capacities. Steel towers and enclosures can be supplied where desirable. Specify, too, Sedgwick Steel Dumb Waiter Doors for complete satisfaction.

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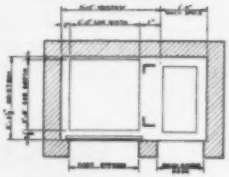

Car Travels to One Inch Beneath Underside of Counter . . . Safely! Plan, shown above, shows standard Under-Counter Roto-Waiter with car 24" x 24", 150 lbs. capacity. Also built specially in greater capacities with cars up to 36" x 36". The height of the car is, of course, dependent on the clear height available under the counter.

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164 West 15th Street, New York 11, N. Y.
ELEVATORS · DUMB WAITERS · RESIDENCE ELEVATORS · STAIR-TRAVELORS
ROTO-WAITERS · SIDEWALK ELEVATORS · FREIGHT ELEVATORS · DUMB WAITER DOORS
THE MAXIMUM IN SAFETY . . . THE ULTIMATE IN ECONOMY — SINCE 1893

SHOW FOR EUROPE

The Museum of Modern Art, New York, announces the appointment of Edgar Kaufmann, Jr., as director of the organization and production of a large exhibit of American home furnishings, scheduled to tour principal cities of Europe next year. The exhibit, "Design for Use," will include some 500 items of furniture, fabrics, lamps, pottery, glassware, flatware, floor coverings, luggage, decorative and personal accessories. The traveling show will first be set up in Stuttgart.

The show now is being prepared by Alexander Girard, Detroit architect, who recently staged the large exhibit, "For Modern Living," at Detroit Institute of Arts. He also will produce an illustrated catalog. Many of the items to be included will be selected from his Detroit show and also from the "Good Design" exhibits in Chicago, conducted by Kaufmann for the Museum, in collaboration with The Merchandise Mart.

MODULAR CO-ORDINATION

A new office devoted solely to furthering Modular Co-ordination has been set up at The Octagon House, Washington, D.C., under sponsorship of The Producer's Council and The American Institute of Architects. Architects, builders, and producers of building materials who have had experience with this system or are contemplating making use of it are urged to send name and address to:

William Demarest, Jr.
Secretary for Modular Co-ordination
Department of Education and Research,
The American Institute of Architects
1735 New York Avenue, N. W.
Washington 6. D.C.

Mention should be included of the nature of experience in Modular Co-ordination or of work in which the use of this system is contemplated. Current literature on modular products is desired, together with the address to which requests for additional copies should be directed.

NEW OFFICE

GRUEN & KRUMMECK, Architects, announce the opening of a new office in Detroit, at 1905 Industrial Bank Bldg., Detroit, Mich.

Chemistry Building, Chicago

ILLINOIS INSTITUTE of TECHNOLOGY

Architect
Ludwig Mies van der Rohe

Associate Architects: Friedman, Alschuler & Sincere; and Holabird & Root & Burgee

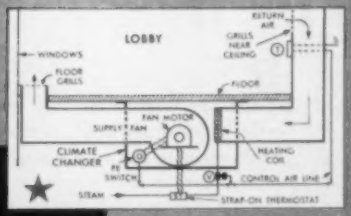
Consulting Engineer: Robert E. Hattis

Heating Contractor: Economy Plbg. & Heating Co.,

All of Chicago, Ill.

POWERS

Modern gradual acting pneumatic thermostats and control valves fit every requirement.



★ NOTE the novel solution to problem of supplying heat and ventilating in an unobtrusive manner. Strap-on-thermostat prevents operation of fan when no steam is available. Pressure electric switch stops fan after valve is closed.

Left: View from inside Metallurgical and Chemical Engineering Building shown below.

POWERS

Pneumatic Systems of TEMPERATURE CONTROL are installed in the following buildings

Chemistry Building • Metallurgical and Chemical Engineering • Institute of Gas Technology • Association of American Railroads • Alumni Memorial Hall • Network Calculator Laboratory • Sound Laboratory • Armour Research Laboratory • Machinery Hall

In 1990 will the Powers installations at Illinois Tech still be giving dependable control?... Nearby, in the Drake Public School, a Powers pneumatic system of temperature control is still giving reliable service after 49 years.

Many users report 25 to 40 years of low cost control from Powers regulation. So, with the better modern equipment now being used, 1990 may be only the half-way mark for present day Powers systems.

When you want temperature control that will provide maximum comfort and fuel savings with lower operating and maintenance cost, contact Powers nearest office. There's no obligation.

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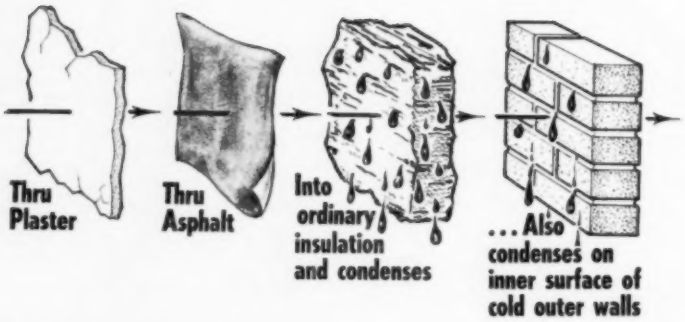
MEXICO, D. F., Edificio "La Nacional" 601

(RCIT)

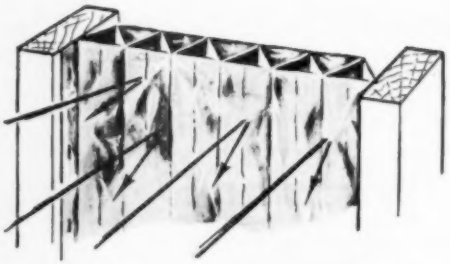
POWERS MASTROL-SYSTEM OF CONTROL FOR FORCED HOT WATER HEATING SYSTEMS.

Vapor Flows



Vapor does not flow thru nor condense on outer or inner surfaces or reflective air spaces of multiple sheet accordion aluminum.

Water vapor is a gas. At 32° its density is 1/200,000th that of water so that it can sieve through asphalt, plaster, and most other building materials. Cold ordinary insulation and cold outer walls, below the dewpoint temperature of the vapor, cause it to condense.



Tough aluminum is impervious to water vapor and yet has insufficient mass to extract heat from contacting air before reaching equilibrium in temperature with it. Colder air can support less vapor, and is an important cause of condensation.

In addition, multiple accordion aluminum repels 97% of heat rays, emits only 3%, and is also an excellent block to conduction and convection. This construction is commercially available as Infra Insulation Type 4 and Type 6, costing less than 7½¢ and 9¢ sq. ft. respectively, material with labor, installed between wood joists in new construction.

"Simplified Physics of Vapor and Thermal Insulation," an authoritative and simply written brochure which has proved of value to architects, engineers, builders and contractors, teachers and officials, may be obtained free by filling out the coupon below.

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MANUFACTURERS' LITERATURE

AIR AND TEMPERATURE CONTROL

1-60. Airtherm Convectors, AIA 30-C-4 (702), 16-p. illus. catalog showing variety of convectors for homes, commercial and public buildings. Diagrammatic drawings, dimensions, hot water capacity tables and data, specifications. Airtherm Mfg. Co.

1-61. Airmat Dust Arrester (280 B), 8-p. illus. booklet describing dust control units for installation in areas where dust problem involves lint, fibrous and granulous dusts. Types, design and construction suggestions, specifications, dimensions, additional products for dust control. American Air Filter Co., Inc.

1-62. Sarcotherm Type AO (ST-600), 4-p. bulletin. Description of compensating outdoor control for hot water and radiant heating systems. Operation, typical applications, schematic drawings. Sarcotherm Controls, Inc.

1-63. Electronics Give You a New Key to Cleanliness in the Home (B-5156), 16-p. illus. booklet explaining operation principles of electronic air cleaner for the home. Descriptions of duct work, piping, and wiring connections, advantages (no moving parts, nothing to replace, easy cleaning, low operating cost), weight, dimensions, cutaway view, other drawings. Westinghouse Electric Corp.

CONSTRUCTION

3-50. Cofar. Prospectus giving product, construction, and design information on combined form and reinforcement for concrete consisting of galvanized wires and welded, deep-corrugated galvanized steel standards. Granite City Steel Co.

3-51. Petco Leads Again, 35-H-6, 4-p. illus. folder describing toilet partitions, of nonmetallic construction, fastened to walls by cantilever suspension; no overhead supports, no posts to floor, simplifying cleaning problem. Details, specifications. J. C. Petterson Co.

DOORS AND WINDOWS

4-68. Aluminum Windows, AIA 16-e, 8-p. bulletin giving specifications for line of casement and awning type aluminum windows. Window section details, dimensions, standard stock types, installation details. Ware Laboratories, Inc.

4-69. Dura-Seal, 4-p. illus. folder on combination metal weatherstrip and sash balance; unit assures smooth, noiseless window operation and provides complete protection against weather and dust. Sectional drawings through typical windows showing different types of weatherstripping available. Zegers, Inc.

ELECTRICAL EQUIPMENT, LIGHTING

5-47. Guide to Lighting Educational Institutions, 52-p. illus. handbook containing general data and practical recommendations for every educational lighting need. Installation photos, lighting layouts, illumination levels data, optical, electrical, mechanical specifying, and catalog data, reference list, index. Holophane Co., Inc.

5-48. Design Details for Electrical Living Homes, AIA 31 (B-4671-A), 24-p. illus. booklet on modern and efficient electrical planning for the home. Kitchen and laundry planning, wiring design, applications, different lighting schemes, unusual lighting effects, minimum requirements for providing complete electric service, miscellaneous details. Westinghouse Electric Corp.

FINISHERS AND PROTECTORS

6-16. Nukemite, 10-p. booklet describing three types of synthetic resin protective coatings and tank linings. Application chart, properties, uses, miscellaneous data. Nukem Products Corp.

SANITATION, WATER SUPPLY, DRAINAGE

Booklet offering variety of shower cabinets, doors, receptors, and shower accessories, such as soap dishes, grab rails, etc. Specifications, installation procedure, roughing-in details, dimensions table. Also, price list sheet. Fiat Metal Mfg. Co.:

19-85. Fiat Shower Cabinets, AIA 35-H-6

19-86. Fiat Price List (850)

SPECIALIZED EQUIPMENT

Folder describing two types of portable gymnasium stands—the Roll-A-Way and Fold-A-Way—making valuable unused space available whenever needed. Specifications, table of sizes, correct seating capacity requirements. Also, three blueprints illustrating typical seating plans. Universal Bleacher Co.:

19-87. Universal Gymnasium Seating

19-88. Blueprint Sheets (Nos. 1, 2, 3)

SURFACING MATERIALS

19-89. Panelyte, 12-p. illus. booklet on decorative, high-pressure laminated plastic material for use on table tops, sinks, bars, and wherever wear-resisting surface is required. Typical installation photos, color chart, section drawings, details, general instructions on veneering and fabricating. St. Regis Sales Corp., Panelyte Div.

19-90. An Announcement by Thibaut, sample booklet illustrating collection of 12 colors in new wallpaper resembling striated plywood finished in two-tone textured effect; particularly suited to contemporary furnishings. Prices per roll. Richard E. Thibaut, Inc.

19-91. Vitachrome, 4-p. illus. bulletin on grease-resistant, plastic-asbestos resilient tile designed specifically for use in cafeterias, restaurants, kitchens, and food serving areas. Color chart, brief specifications. Tile-Tex Div., Flintkote Co.

(To obtain literature coupon must be used by 1/1/51)

PROGRESSIVE ARCHITECTURE, 330 West 42nd Street, New York 18, N. Y.
I should like a copy of each piece of Manufacturers' Literature circled below.
We request students to send their inquiries directly to the manufacturers.

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5-47	5-48	6-16	19-85	19-86	19-87	19-88	19-89
19-90	19-91						

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The bundle of sticks

A wise old man called his quarrelsome sons about him. Taking up a bundle of sticks, he commanded each in turn to break the sticks. All tried, but in vain, and said it could not be done.

"And yet, my boys, nothing is easier to do," said the father, as he undid the bundle and broke the sticks, one by one. "By this example, you can see that united you will be more than a match for your enemies; but if you quarrel and separate, your weakness will put you at the mercy of those who attack you."

The useful truth of this fable is just as timely today as it was when the Greek ex-slave Aesop told it 2,500 years ago. You, a patriot, believing in individual liberty and freedom for all, see our American way of life threatened by the menace of communism abroad and jeopardized at home by complacence, negligence, confusion and incompetence.

As a business leader in your own community, you have a particular responsibility to help unify your fellow citizens and guide their thinking and action--for the strengthening and preservation of the ideals that built America, in fact, made America the envy and goal of the very individuals now seeking to destroy it. *In Union there is Strength.*

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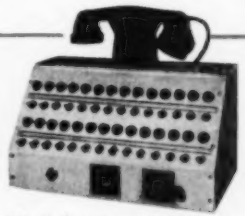
HELP *when needed*

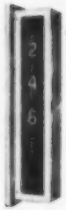
immediate contact is a vital necessity in successful hospital operation

AUTH communication and protection systems for hospitals provide facilities for quick contact between patients and nurses, nurses and doctors, staff executives and staff. They protect life, promote greater operating efficiency, reduce expense, and save time and energy.

Nurses calling Systems signal from patient to nurse.



Vokalcall Systems provide voice communication between patient and nurse.



Doctors' Paging Systems locate doctors in emergencies.

Staff Register Systems indicate presence or absence of Doctors and staff executives.

Intercommunicating Telephone Systems provide voice communication between key points.

Fire Alarm Systems warn fire brigade of existence and location of fire.

In addition—

- Night lights to provide soft illumination in corridors and rooms
- Centrally controlled clock systems
- Elapsed time indicators for measuring time in operating rooms.

Literature is available describing these and other Auth products and systems.

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No *one* fixture will solve all lighting problems.

There are, in fact, literally thousands of luminaires engineered to do specific jobs. One may be the right answer—or it may take two or three.

Good lighting combined with practical economics takes the services of a qualified lighting engineer.

Whether you plan lighting, buy lighting or install lighting, the services of a Westinghouse lighting engineer are available to you. J-04280

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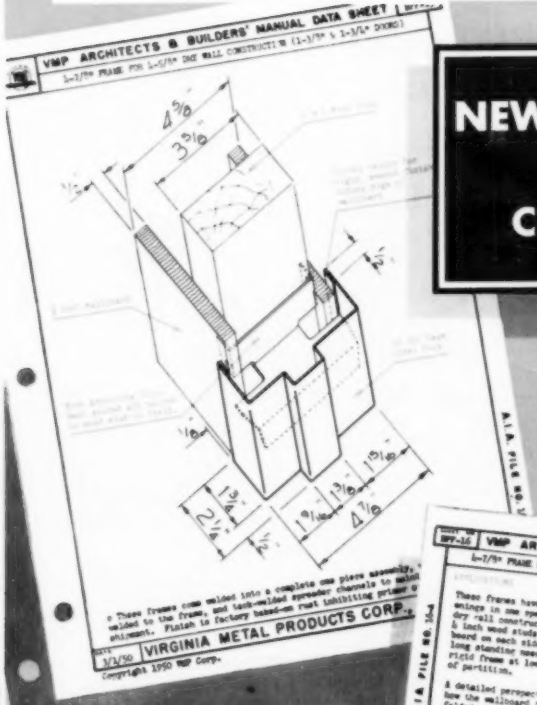
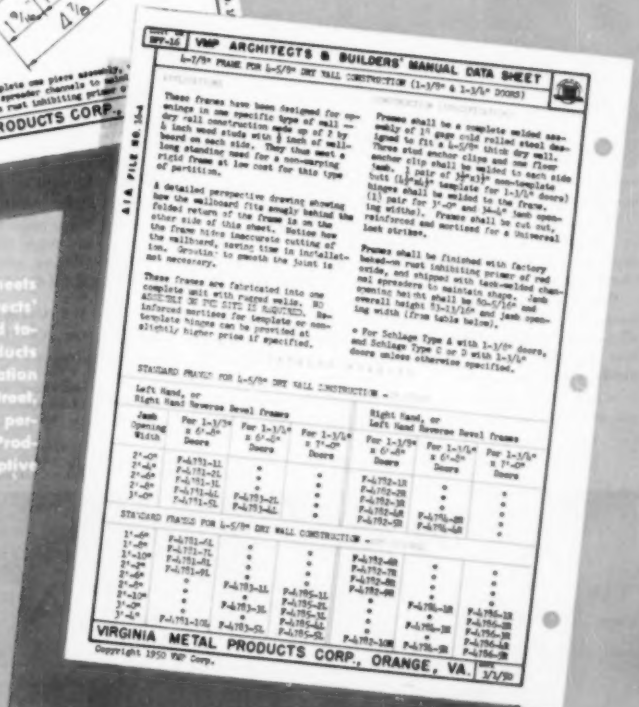


NEW METAL FRAME for DRY WALL CONSTRUCTION

Frames, of 18 gage cold rolled steel, for either 1⅜" or 1¾" doors, are designed to fit 4⅝" thick dry walls. 3 stud anchor clips, floor anchor clip and non-template butt hinges come welded to unit. Frames are finished with factory baked-on rust inhibiting primer of red oxide.



This is one of the Data Sheets from the new V M P Architects' and Builders' Manual. Send today to Virginia Metal Products Corporation, Product Information Department, 60 Hudson Street, New York, N. Y., for your personal copy of the Building Products Section of this descriptive manual.

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LIBRARY EQUIPMENT • MOBILWALLS • MOBILRAILS • ALL METAL BI-PASSING DOORS • ALL METAL SWING DOORS

Modern Trane Convectors keep coeds cozy in the new residence building at Mt. Holyoke College, South Hadley, Massachusetts. Architect: Douglas Orr, New Haven, Conn. Contractor: C. H. Cronin, Inc., Boston, Mass.

Convectors – cum laude

When it comes to selecting the valedictorian of the convector class, leading architects, engineers and builders are nominating Trane Convectors for this coveted award.

Trane Convectors have long been proclaimed a leader in the school heating field because they can really be depended upon to deliver the utmost in comfortable, cleaner, controlled heat—efficiently and economically.

They're economical to operate because Trane Convectors waste no heat. Quick response, when heat is needed, assures efficient regulation. With quick-acting convector controls, heat output can be instantly regulated to exactly suit individual desires.

Sturdily built of heavy furniture steel, Trane Convectors are designed to withstand the most rugged abuse. Their graceful lines enhance the beauty of every room. Can be painted to blend with any scheme of decoration. They fit any steam or hot water system.

Ask the Trane Sales Engineer in your area to show you how the many types and sizes of Trane Convectors—free standing, wall hung, semi-recessed, fully recessed or picture window—will fill every application perfectly.

THE TRANE COMPANY...LA CROSSE, WIS.

EASTERN MANUFACTURING DIVISION, SCRANTON, PA.

Manufacturing Engineers of Heating, Ventilating and Air Conditioning Equipment—Unit Heaters, Convector-radiators, Heating and Cooling Coils, Fans, Compressors, Air Conditioners, Unit Ventilators, Special Heat Exchange Equipment, Steam and Hot Water Heating Specialties ... IN CANADA, TRANE COMPANY OF CANADA, LTD., TORONTO.

Trane Convectors hide away in the walls under windows at Mt. Holyoke College, permitting complete freedom of room decoration while providing an abundance of heating comfort.

INSULITE*

Complements any Modern Interior

INSULITE has given the above interior added beauty and comfort. See how the Tileboard ceiling enhances the over-all decorative scheme. And its surface and lustrous color insures the high light reflection which you desire in a ceiling material. But INSULITE adds more than beauty and high light reflection to this contemporary setting. INSULITE Tileboard insulates as it decorates—cuts heat passage through ceilings as much as 30%. Another advantage of this type of ceiling construction is its exceptionally low cost.

INSULITE offers a new and complete line of insulating interior finishes in tileboard, plank and large interior board sizes. Variable in adaption to give the architect ample range of imagination in design and treatment. Words and pictures can't do justice to their beautiful new colors and surface textures. They must be seen to be appreciated. May we show them to you? Just drop a card to INSULITE, Minneapolis 2, Minnesota.

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Made of Hardy Northern Wood

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Refer to Sweet's File, Architectural Section 10a/I

*Reg. T. M. U. S. Pat. Off.

Architectural Concrete

chosen for huge Metropolitan Life housing project

Parklabrea, near Los Angeles' famous "Miracle Mile" Wilshire Boulevard district, is probably the biggest architectural concrete job ever built in the United States. Owned by the Metropolitan Life Insurance Company, it will provide 2,754 dwelling units of architectural concrete. Part of this 176-acre housing development was begun before the war. Present construction includes eighteen 13-story buildings and seven 2-story garages.

Architectural concrete was chosen for this project because it combines economy, beauty, durability and firesafety. Moreover, both structural and ornamental parts could be cast in one operation.

Architects for the Parklabrea housing development are Leonard Schultze & Associates, New York, represented in Los Angeles by Gordon B. Kaufmann and J. E. Stanton. General contractor is Starrett Bros. and Eken, Inc., New York. Structural engineers are Bowen, Rule and Bowen.

Whether you are designing a huge rental development like the Parklabrea project or a small commercial structure, architectural concrete is an ideal construction material. Versatile and adaptable, it can be used to create imposing and functional schools, hospitals, churches, theaters, office buildings, apartments and other structures. Concrete's long life and low maintenance cost result in ***low annual cost.*** That's important to owners, investors and taxpayers alike.

For additional information about architectural concrete write for free, illustrated literature. It is distributed only in the United States and Canada.

PORTLAND CEMENT ASSOCIATION

DEPT. 11-25, 33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

For a SURE APPROACH to safety depend on National Electric

Approved under specification L-824

These National Electric Style RR Flexlay Cables are CAA approved. After rigorous tests, they are now included on the "List of Approved Lighting Equipment" as covered by Civil Aeronautics Authority Specification L-824 "Underground Electrical Cables for Airport Lighting Circuits."

NE Flexlay Cables are *dependable* for the continuous service conditions required by airports. With plenty of built-in "abuse resistance," they are ideally suited for underground installation—either direct burial in the earth or pulled in conduits.

National Electric CAA-approved cables are recommended for airport lighting and signal circuits, as well as for street and highway lighting, municipal, power and other installations where *maximum dependability* is desired for underground wiring. The tough, specially-compounded Neoprene sheath affords complete protection against the destructive forces below the earth's surface, and gives outstanding protection when exposed to the sun and weather.

Specify National Electric CAA-approved cables for safe, reliable operations in your next airport installation.

TYPE "A" PERFORMANCE CABLE
Flexlay, Style RR, Airport Lighting Cable, 600 Volt Rating, AWG Sizes 4 through 16. (Single and Multiple conductor available)

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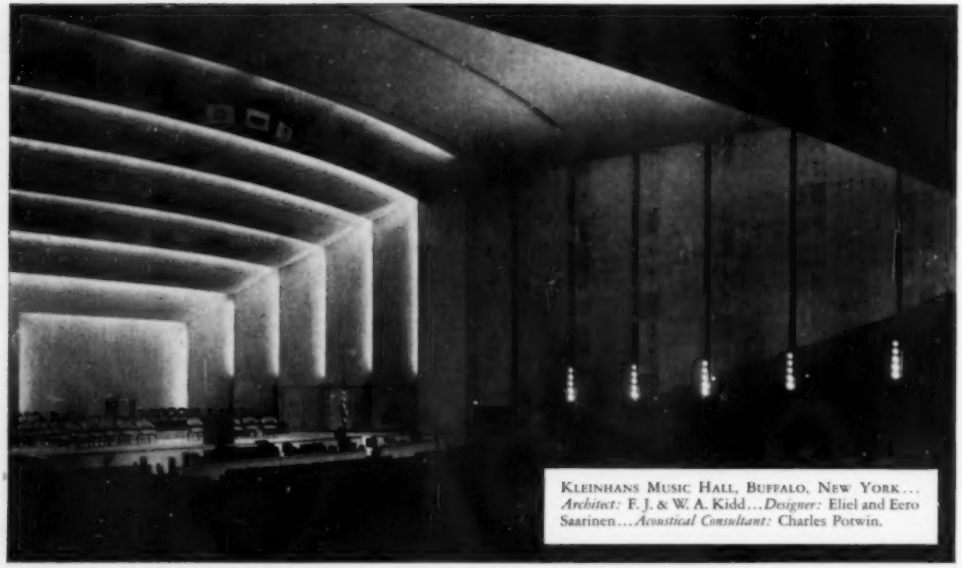
Flexlay, Style RR, Airport Lighting Cable, 5000 Volt Rating, AWG Sizes 4 through 10. (Single and Multiple conductor available)

TYPE "B" OZONE RESISTANT CABLE
Flexlay, Style RR, Airport Lighting Cable, 5000 Volt Rating, AWG Sizes 4 through 8. (Single Conductor)

Light in weight—Flexible
Easy to handle

National Electric
PRODUCTS CORPORATION
1328 CHAMBER OF COMMERCE BUILDING, PITTSBURGH 19, PA.



KLEINHANS MUSIC HALL, BUFFALO, NEW YORK... *Architect:* F. J. & W. A. Kidd... *Designer:* Eliel and Eero Saarinen... *Acoustical Consultant:* Charles Potwin.

What makes Kleinhans Music Hall acoustically perfect?

A FEW weeks ago, Buffalo's 10 year old Kleinhans Music Hall underwent a rigid acoustical examination by eminent sound control experts from M.I.T. They pronounced it one of the world's five most-acoustically-perfect concert halls.

Inspired design and the use of the finest acoustical materials helped make it so.

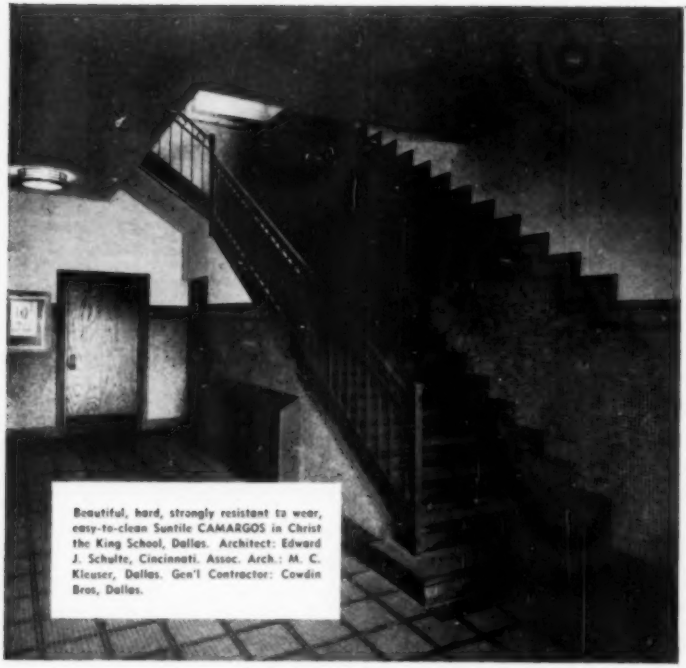
The Gold Bond products that went into Kleinhans Music Hall will serve just as effectively in schools, hospitals, offices, factories and bowling alleys. Gold Bond Acoustical Applicators, located in all key cities, are factory-authorized experts, equipped to solve *any* sound control problem you may have. They will work with you during the planning stage, and figure cost estimates at no obligation; but more important, their supervision follows right through to the finish, insuring complete satisfaction to you and your client.

Choose from Tiles of metal (Acoustimetal), fireproof mineral wool (Travacoustic), wood fibre (Acoustifibre, drilled, and low cost Econacoustic), as well as new lightweight Acoustical Plaster...all fully described in Sweet's.

NATIONAL GYPSUM COMPANY
BUFFALO 2, NEW YORK

The 52-ft. long bar ceiling is faced with Travacoustic, National Gypsum's new fireproof mineral wool tile that closely resembles travertine stone.

Radiant, Rugged, Real clay *Suntile* puts a new "3R's" in schools



Beautiful, hard, strongly resistant to wear, easy-to-clean Suntile CAMARGOS in Christ the King School, Dallas. Architect: Edward J. Schulte, Cincinnati. Assoc. Arch.: M. C. Kleuser, Dallas. Gen'l Contractor: Cowdin Bros, Dallas.

Here's a new "3 R's" your clients are always pleased to learn about—"3 R's" that will teach them valuable lessons about lasting beauty and economy in school interiors.

The subject is not complicated. You simply insist on these "3 R's" when you're choosing tile:

Radiant: beauty-bright Color-Balanced Suntile makes it wonderfully easy to achieve the exact color effects desired for every part of the school. There's a rainbow's range of harmonious colors to choose from—radiant colors, soft, subdued colors, colors that improve lighting and aid vision, colors you can get only with Suntile.

Rugged: hard wearing Suntile gives you walls and floors with a fadeless, stainless finish. You can put Suntile in classrooms, corridors, cafeterias—any place where there's heavy traffic and hard wear. *A stroke of a damp cloth is all the maintenance required to keep it clean.*

Real clay: this is the reason for Suntile's beauty and durability. These qualities are *fired in . . . permanently.*

Suntile carries this quality right through to the guaranteed installation, too. Every job is performed by an Authorized Suntile Dealer, a craftsman who's been specially trained to give you those "3 R's" every time. He can be a big help to you in planning almost any kind of interior. Why not call on him now? See your classified telephone directory, or write us for his name. We shall be happy to serve you.

IDEAL FOR schools, hospitals, stores, public buildings, industrial plants, residences

GET THIS EXCITING NEW COLOR PALETTE FOLDER!

Created under the direction of Faber Birren, leading color authority. 22 attractive wall colors, 27 beautiful shades of unglazed ceramic mosaic tile, 10 unique Suntile Camargo colors. All selected to give you a wide range of effective color treatments for walls and floors. Write today for your FREE copy, or see our Sweet's Catalog. Dept. PA-11, The Cambridge Tile Mfg. Co., Cincinnati 15, Ohio.

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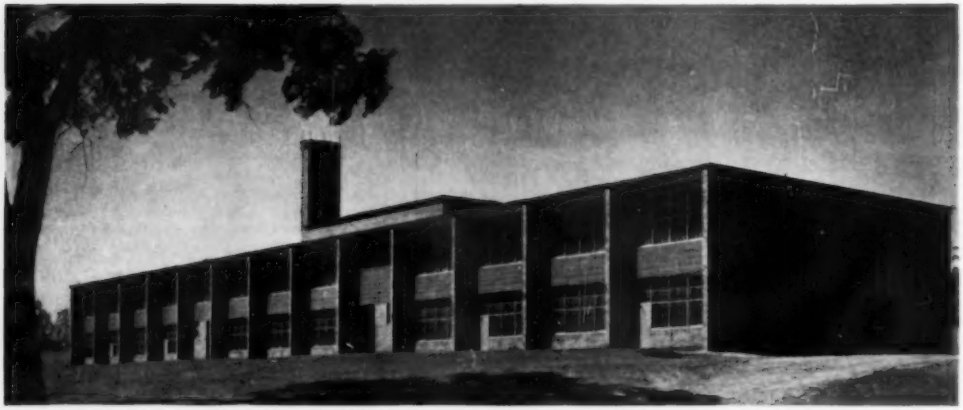
SUNTILE OFFERS YOU BOTH • BETTER TILE • BETTER INSTALLATION

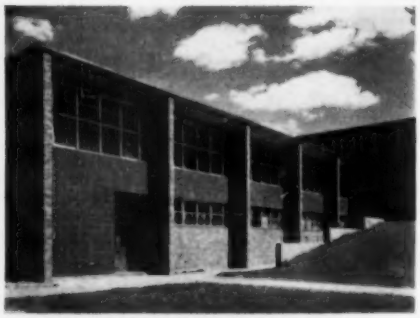
PROBLEM:

Design, within a budget, a truly modern school that will become the teacher's pet, the pride of pupils and community.



SOLUTION:

Design in **ENDURO-ASHLAR** *Architectural Terra Cotta . . . its plasticity of form, color and texture gives you complete creative freedom while keeping initial costs in line and maintenance at a minimum.*



INDIAN LANDING ELEMENTARY SCHOOL
Brighton, New York

Kaelber & Waasdorp: — *Architects*
Perkins & Will

Werner Spitz Constr. Co.: — *Builders*
Swartout & Rawley, Inc.

Building shown is the original; additions are now being built. Facing of 4" thick Enduro-Ashlar Architectural Terra Cotta in moss green glaze gives a colorful contrast to golden tan bricks.

BUDGET-BOUND schools can graduate to new beauty when you specify Enduro-Ashlar Architectural Terra Cotta, for it enables you to meet the creative challenge where quality, price and maintenance are of equal importance. This time-proved terra cotta can be produced in units large or small, for interiors or exteriors, plain surfaces or decorative sculpture, in an unlimited range of ceramic colors. Moreover, its original richness and beauty can be retained indefinitely by simple soap-and-water washings. *Construction detail, data, color samples, estimates, advice on preliminary sketches, will be furnished promptly without charge. Send your inquiry today.*

FEDERAL SEABOARD TERRA COTTA CORPORATION

F S T C

10 EAST 40TH STREET, NEW YORK 16, N. Y.

Plants at Perth Amboy and South Amboy, N. J.

Bayley
Aluminum Projected Windows

The Right Choice for Schools
of every size and type

Ideal control of natural daylight, ventilation, and vision

School administrators back up the architectural wisdom of selecting windows that provide ample classroom lighting, draft-free comfort, and clear visibility, and are styled to blend with any type of building design. On every count, Bayley Aluminum Projected Windows are the logical choice, as proved by constantly expanding, nationwide use.

These windows are made of specially extruded, extra-strength aluminum sections that never need painting. Structurally simple, they have no complicated mechanical parts to get out of order. Economical in both first cost and maintenance. The Projected-Out Ventilator, with awning effect, affords weather protection. This and the Projected-In Ventilator are adjustable to permit "no-draft" air circulation.

Screens supplied as optional equipment. Venetian or other blinds can be readily applied. (Bayley Projected Windows are also available in steel construction.) Write for complete details today.

- **ATTRACTIVE**—styling is modern and streamlined in every way
- **ECONOMICAL**—require no painting or expensive maintenance
- **PERMANENT**—materials conform to rigid specifications
- **SIMPLICITY**—no gears, cranks, or other complex mechanism
- **UNIVERSAL**—readily adapted to any structural treatment
- **COMPLETE**—all set for installation and outside glazing
- **ACCESSIBLE**—smooth surfaces easy to wash from inside
- **VENTILATING**—provide awning protection and "no-draft" air flow

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SPRINGFIELD 99, OHIO

70 Years of Reliability

CRANE

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HUNZINGER CONSTRUCTION CO., Milwaukee, Wis.
GENERAL CONTRACTOR

WENZEL & HENOCH CO., Milwaukee, Wis.
PLUMBING CONTRACTOR

Foreground, Crane Norwich Lavatories, vitreous china. Features: rectangular basin, splash lip, *Dial-ese* controls with interchangeable cartridge.

Background, Crane Sanitor Urinals. Slope front design assures high sanitation, minimum upkeep.

Not shown: Crane Santon Closets with new *Triumph* flush valves. New valve has replaceable plunger and seat for easy maintenance.

Crane offers a complete choice of plumbing fixtures for any commercial installation —consult your Crane Branch or Crane Wholesaler.

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PLUMBING AND HEATING • VALVES • FITTINGS • PIPE

See
the difference in
MENGEL Stabilized
SOLID-CORE flush DOORS!
Mengel Stabilized Solid-Core Flush Doors employ an entirely unique and exclusive principle *to give you a new standard of stability and dependability* — and at strictly competitive prices.
Instead of attempting the impossible task of *preventing* expansion and contraction in wood, Mengel has developed a construction design which *absorbs* expansion and contraction within the core itself. All Mengel core members are deeply slotted at frequent intervals, both with and across the grain. The result is that the *slots* expand or contract in width, but the *door* remains stable!
Get all the facts, and see a cutaway sample. When you *see* the difference, you'll greatly prefer Mengel Stabilized Solid-Core Doors!
Also see —
MENGEL HOLLOW-CORE FLUSH DOORS
the finest products of their type on the market.
All standard stock sizes and species available.
FOR FULL DETAILS, PLEASE JUST WRITE
YOUR NAME AND ADDRESS IN MARGIN, AND MAIL TO —
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McKinley Grade School, Coffeyville, Kan. Architect: Thomas W. Williamson & Co., Topeka, Kan. Contractor: Charles Bennett Construction Co., Coffeyville, Kan.

Look at the windows in this modern school building. See how bright and clear classrooms can be . . . how easy it is to have natural ventilation in virtually every type of weather. It's another Lupton Metal Window installation with all the advantages of modern window design plus economical installation. Lupton Metal Windows are precision-built at every point. Will not warp, swell or shrink—always easy to operate. Beautifully designed locking hardware allows finger-touch operation. Lupton Metal Windows are made in steel and in aluminum in sizes and designs particularly suitable for school building requirements. Write for our General Catalog or see it in Sweet's.

MICHAEL FLYNN MANUFACTURING CO.
700 East Godfrey Avenue, Philadelphia 24, Penna.
Member of the Metal Window Institute

LUPTON
METAL WINDOWS

colorundum

For colored concrete floors or sidewalks of real beauty and durability specify the use of Colorundum. For interiors or exteriors of hotels, banks, stores, hospitals, show rooms, service stations and factories you get bright, colorful surfaces with a wear-resistant topping of long life—at practically the average cost of ordinary concrete. Colors are red, brown, green, French grey and black.

Colorundum is a dry powder, composed of coloring mediums, fused aggregates, water-repellent and hardening elements, plus cementitious binders. Colorundum is used as a dust-coat which is floated and trowelled into the topping. The non-slip, dense surface makes it an ideal flooring on new concrete or when replacing old concrete floors or sidewalks.

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Manufacturers of materials for building maintenance and construction—established in 1887
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GENTLEMEN:
Please send complete data on COLORUNDUM.

NAME_____ TITLE_____
COMPANY_____
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CITY_____ STATE_____

BEAUTY
where you want it
BRAWN
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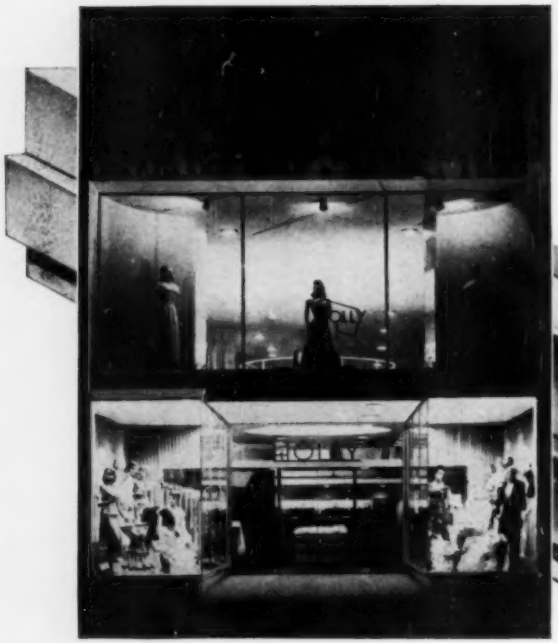

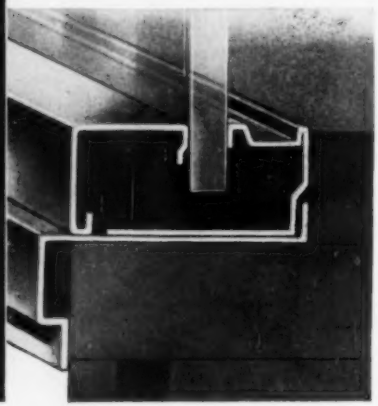

Archts. Sidney H. Morris & Associates, Chicago

FOR new departures in store front architecture Brasco Construction adds distinctive beauty that attracts new customers and brings old ones back time and again. The classic styling of our Safety-Set line is in complete harmony with advanced design treatment, blending artistically with structural glass and other modern facings.

Structurally sound, Brasco is your *safest* store front setting. The deeper grip incorporated in all Brasco sash and bars supports window plate firmly and evenly, entirely without strain. Continuous tubular steel reinforcement in our rugged division bars adds the extra protection necessary for enlarged and heightened glass areas.

Here is beauty and brawn combined to provide store fronts with architectural distinction, structural stamina and potent sales appeal. Handsome Brasco stock assemblies in infinite variety are available in both heavy gauge stainless steel and anodized aluminum. Write for catalog and full size construction details.

★ ★ A COMPLETE LINE FOR EVERY DESIGN ★ ★

Brasco
SAFETY-SET
STORE FRONTS

BRASCO MANUFACTURING CO.
HARVEY · (Chicago Suburb) · ILLINOIS
Specialists in Metal Store Front Construction for more than 40 Years

Design a *Graceful Welcome* into clients' homes

Every home owner wants his floors to provide the rare combination of tasteful, unusual beauty and serviceable, down-to-earth durability.

Next time that problem comes up, specify Flexachrome*. You'll give your client everything he wants in a floor.

This modern, plastic-asbestos flooring material really provides what its name implies . . . *flexible color.* Its flexibility assures quick and permanent adhesion to all types of sub-floors. And you've never before seen such color in resilient flooring. 33 rich, vivid, *true* colors to lighten, brighten and beautify any room in the house.

Tile-at-a-time installation gives you wide latitude in design...stripes, plaids, basket-weave, or any other pattern your clients want.

Custom-cut inserts enable you to personalize Flexachrome floors.

Flexachrome's durability is exceptional, too. You can reassure your clients that, properly installed, his Flexachrome floors will last the life of his home. And, because it's greaseproof, Flexachrome is ideal for kitchens and dining areas . . . or any area where grease is a problem. Maintenance is easy, and those who prefer unwaxed floors will be delighted to discover that Flexachrome retains a soft, satiny beauty merely with dry buffing and an occasional steel wooling.

Tile-Tex
PLASTIC-ASBESTOS
FLOORS AND WALLS

Let us send you complete details on Flexachrome and other Tile-Tex products. THE TILE-TEX DIVISION, The Flintkote Co., Dept. R, 1234 McKinley St., Chicago Heights, Ill.

*REGISTERED TRADEMARK, THE FLINTKOTE COMPANY

Here's

DRAMATIC PROOF of INCREASED SAFETY

with the WELDWOOD STANDARD MINERAL CORE FLUSH DOOR

Read what Architect Clayton B. Frye, of Duane Lyman and Associates, has to say about the Spectacular Durability of this Door in a Serious School Fire

U. S. Plywood Corp.
300 Greene Street,
Buffalo, New York

Re: Sodus School

Dear Sirs:

We wish to state that the U. S. Plywood doors used in the Sodus School stood up remarkably well under fire and water conditions during the recent fire.

One door, which stood in 3/4" of water, showed no signs of the veneer becoming loose.

Another door, where the veneer was burned through, and the glass broken by the heat, showed no signs of warping.

The veneer was burned off both sides of another door, and the door had not warped in the least.

All these doors were subject to direct water for at least one hour, plus the heat and steam caused by the fire.

We highly recommend this type of door for its toughness and stability.

Very truly yours,

DUANE LYMAN AND ASSOCIATES
(Signed) Clayton B. Frye

Here's one of the doors in the Sodus School, Sodus, N. Y., described in Mr. Frye's letter. Although fire raged all around it, the door is unwarped. Except for superficial damage to appearance, it's in perfect working condition.

THIS "ALL-ROUND" DOOR GIVES YOU OTHER BENEFITS, TOO

The Weldwood® Mineral Core Door is highly decorative. You can choose from a wide variety of carefully selected hardwood face veneers, either foreign or domestic. Any one will make a real addition to beauty and appeal.

Add to that such advantages as *maximum dimensional stability . . . unusually light weight . . . waterproof glues . . . guaranteed resistance to rot, fungus and vermin . . . excellent insulation qualities . . . exceptional strength and durability* . . . and you have a door that's tops in value for either interior or exterior use.

If you don't have complete data on this door, you should. Write us, now, and we'll rush complete specifications and product information.

WELDWOOD® FLUSH DOORS

Manufactured and distributed by

UNITED STATES PLYWOOD CORPORATION

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Cemesto* speeds work, cuts cost of building interior walls!

Cemesto combines amazing structural strength, high insulation value, interior and exterior finish—all in a single fire-resistant panel that's quick and easy to apply!

You simplify construction, save time, reduce both labor and material costs . . . when you build interior walls with 4' 0" wide Cemesto Insulating Structural Panels. No other single building material combines all these advantages and economies:

Cemesto Panels give you remarkably strong, durable, handsome partition walls. They save space, *increase usable room area*—because a single thickness of Cemesto replaces ordinary walls up to 6" thick.

Cemesto Panels are quick and easy to put up, thanks to new-type metal moldings and "snap-on" fastenings now available. These do away with unsightly projecting battens, provide more attractive, flush-type partitions.

What's more, Cemesto Panels require no decoration. Left natural, their smooth, stone-gray surfaces provide permanently maintenance-free interior and exterior finish, with a light-reflection value of 58%. Cemesto Panels have high *built-in* thermal insulation value. Used on both sides of wood framing they reduce transmission of noise from room to room. And they are easily demountable, *fully salvageable!*

Cemesto Panels Offer Many Unique Advantages

Cemesto Panels are strong, rigid, pre-formed units made of laminated panels of Celotex cane fibre insulation—to which hard, non-combustible cement-asbestos facings are bonded on both sides by a highly vapor-resistant, moisture-proof adhesive.

They are light and easy to handle, yet have amazing structural strength. And their insulating core is protected by the exclusive patented Ferox* Process against fungus, dry rot and termites.

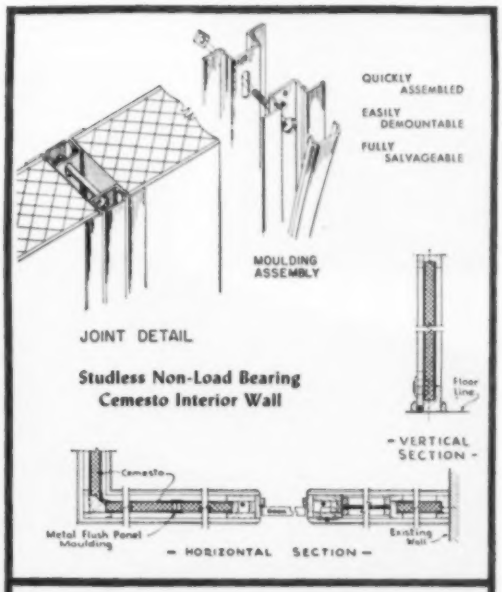
Widely used for curtain walls and roof decks, as well as partition walls, Cemesto panels do more than speed erection and reduce costs. They also *insulate efficiently* for but little more than the cost of ordinary uninsulated construction!

Cemesto Panels Are Amazingly Versatile

Cemesto Panels resist fire, weather and wear—*they're a "life of the building" material!* Can be worked with ordinary tools on the job, or pre-cut at the mill for faster application. Quickly, easily attached to steel framing with metal clips, or to wood framing or wood members with nails.

Cemesto Panels make possible important economies in the design, construction and maintenance of every type building . . . from modest homes to giant industrial plants. Almost 20 years of varied use in all climates, all over the world, prove their stability, performance and permanence. Discover how they can help *you* build better, faster . . . *and at lower cost.* Mail coupon below for full information!

*Reg. U. S. Pat. Off.



These details of interior walls erected with Cemesto Panels indicate the cost-cutting, space-saving simplicity which this modern marvel of building materials makes possible in all types of construction.

THE CELOTEX CORPORATION
Chicago 3, Illinois

CEMESTO
REG. U.S. PAT. OFF.

INSULATING STRUCTURAL PANELS

MAIL COUPON TODAY!

The Celotex Corporation, Dept. PA-110
Chicago 3, Illinois

Please send me FREE your 40-Page Manual, giving full technical data on Cemesto Panels, plus latest design and application recommendations. I am particularly interested in ☐ Partitions ☐ Curtain Walls ☐ Roof Decks.

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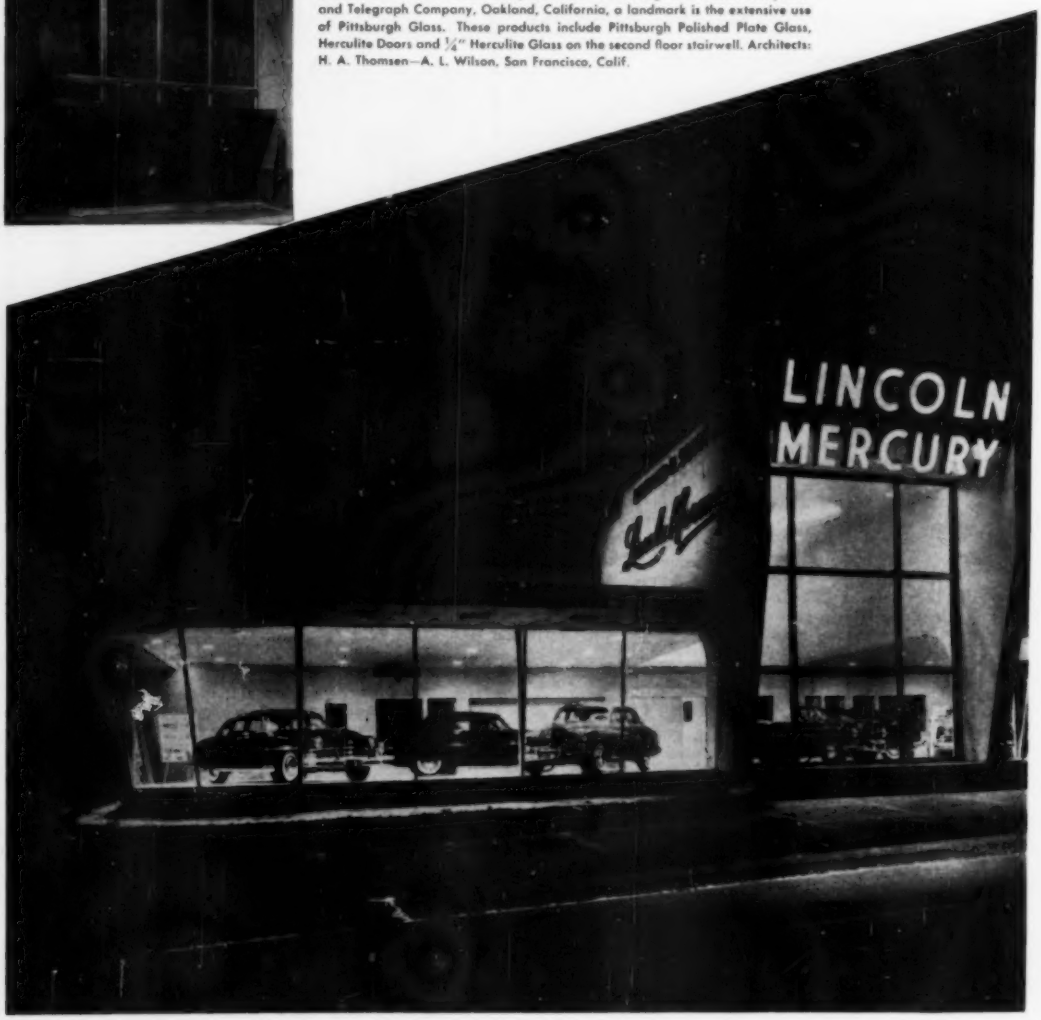
Interesting applications

AMONG THE ELEMENTS that help to make this building of the Pacific Telephone and Telegraph Company, Oakland, California, a landmark is the extensive use of Pittsburgh Glass. These products include Pittsburgh Polished Plate Glass, Herculite Doors and ¼" Herculite Glass on the second floor stairwell. Architects: H. A. Thomsen—A. L. Wilson, San Francisco, Calif.



ARCHITECTS FIND Pittsburgh Products ideal for meeting the demands imposed by open-vision store fronts. These large expanses of transparent surfaces permit seeing the interior from the sidewalk, thus serving as a display and advertising medium. In this automobile showroom at Ardmore, Pennsylvania, Pittsburgh Products were utilized to help create a distinctive and appealing design. Among these materials are Pittsburgh Polished Plate Glass windows, Herculite Doors, and Pittco Premier Store Front Metal. Architect: J. Bedford Wooley, Philadelphia, Pa.

# of GLASS in current construction

NO OTHER material can add so much beauty and utility to a bathroom as Carrara Glass. Architects agree on that. For Carrara lends itself to many interesting and pleasing treatments. It is available in ten colors, a wide range of thicknesses and numerous possible surface decorations. It lasts indefinitely, is easily kept clean.

ALL THE ADVANTAGES of Twindow—Pittsburgh's window with built-in insulation—plus a high degree of ventilation, are now available to your clients. That is because of the Vita Automatic Window—"the only picture window that opens electrically!"—offered by Vita Automatic Windows Inc., 101 Park Avenue, New York 17, N. Y.

This cut-away view shows the construction of a Twindow unit, using two panes of Pittsburgh Polished Plate Glass. The hermetically-sealed air space between the panes provides effective insulation which minimizes downdrafts, cuts heat losses through windows, reduces condensation. When three or more panes are used, insulation is even more efficient. Forty-seven standard Twindow sizes are available, adaptable either for wood or steel sash.

Design it better with

Pittsburgh Glass

Your Sweet's Catalog File contains a complete listing and descriptions of Pittsburgh Plate Glass Company products.

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS

PITTSBURGH PLATE GLASS COMPANY

four good things

1. Attractive and practical as well is this Nairn installation in the Aetna Insurance Company,

...the 4-square features of

Clients quickly see your wisdom in specifying Nairn Linoleum—it talks clients' own language so convincingly!

Long Life—Nairn installations of 30 years ago are still going strong—under heaviest service!

Enduring Beauty—a wide range of colors and patterns gives unlimited scope for decorative schemes—and they'll *stay* fresh and attractive!

Easy Maintenance—its smooth, crevice-free, sanitary surface keeps clean with minimum labor. Nairn Linoleum never requires costly refinishing.

True Resilience—so foot-easy and quiet, no other material assures such dollar value in long, trouble-free service. Moderate in first cost, satisfied users specify it again and again for use under every type of traffic.

For your specifications: Nairn Linoleum – Nairn Wall Linoleum – Nairn Asphalt Tile. Congoleum-Nairn Inc., Kearny, New Jersey

NAIRN LINOLEUM

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to stand on . . .

Hartford, Conn. Extremely durable, Nairn gives trouble-free service for years and years.

2. This lobby and reception room of Radio Station WTIC, Travelers Insurance Company, Hartford, Conn., is sensibly floored with Nairn Linoleum for quiet, foot-easy walking.

3. The cleanliness of crevice-free Nairn Linoleum makes for easy maintenance in this room and increases sanitation at the Mercer General Hospital, Trenton, N. J. .

Nairn Linoleum!

NAIRN LINOLEUM
SATISFACTION GUARANTEED OR YOUR MONEY BACK

1. Long Life

2. Enduring Beauty

3. Easy Maintenance

4. True Resilience

For FLOORS and WALLS

4. A typical Nairn installation in the Lincoln School, Lincoln, Mass., provides long, quiet, trouble-free service . . . proper light reflectance . . . easy maintenance with its crevice-free surface.

How you can build *Thermopane* for EXTRA VALUE at LOW COST

Read how it is being done by Russell Benjamin and other building developers

Builder Russell Benjamin and Architect Herman York recognized the appeal of big window areas when they planned the homes for Lyle Forest, Tenafly, New Jersey. They recognized the need for *insulating* those big windows for comfort and full use of floor space in winter. They recognized, too, that *Thermopane** is the insulating glass that people *know* and *want*.

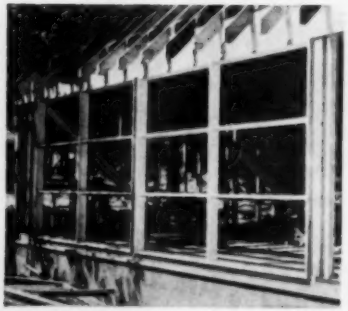
And so they worked out a method of *Thermopane* window wall construction which is comparable in cost to standard wall construction with conventional windows. The secret lies in working with standard *Thermopane* sizes and in the way the 2 x 6's are routed and joined for framing. They used DSA *Thermopane* $\frac{1}{2}$" thick with $\frac{1}{4}$" air space between the two panes.

This adds a *lot* of extra value—the appeal of window walls that bring in the outdoors—plus attractive design, extra comfort and fuel saving. We thought you'd want to know about it. The pictures shown here give the basic steps. By mailing the coupon you can get the whole story—including detail drawings that will enable you to duplicate this low-cost method of building extra sales appeal into houses.

Thermopane is made in plate glass and in DSA—in more than 80 standard sizes, as well as special sizes, so you can use it in all kinds of windows.

*®

1. Window wall header and uprights in position to receive the window wall frame of specially rabbeted 2 x 6's. (Framing details available—mail coupon.)

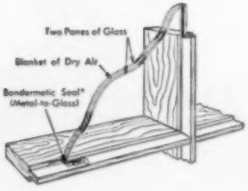


2. Window wall frame nailed into place, ready for insertion of either standard 45½"x25½" *Thermopane* units or aluminum projected-type windows of like size.

3. *Thermopane* unit in place. Frame has received a bed of glazing compound before insertion of the unit. Workman is filling voids prior to installation of wood stops.

LOF GLASS

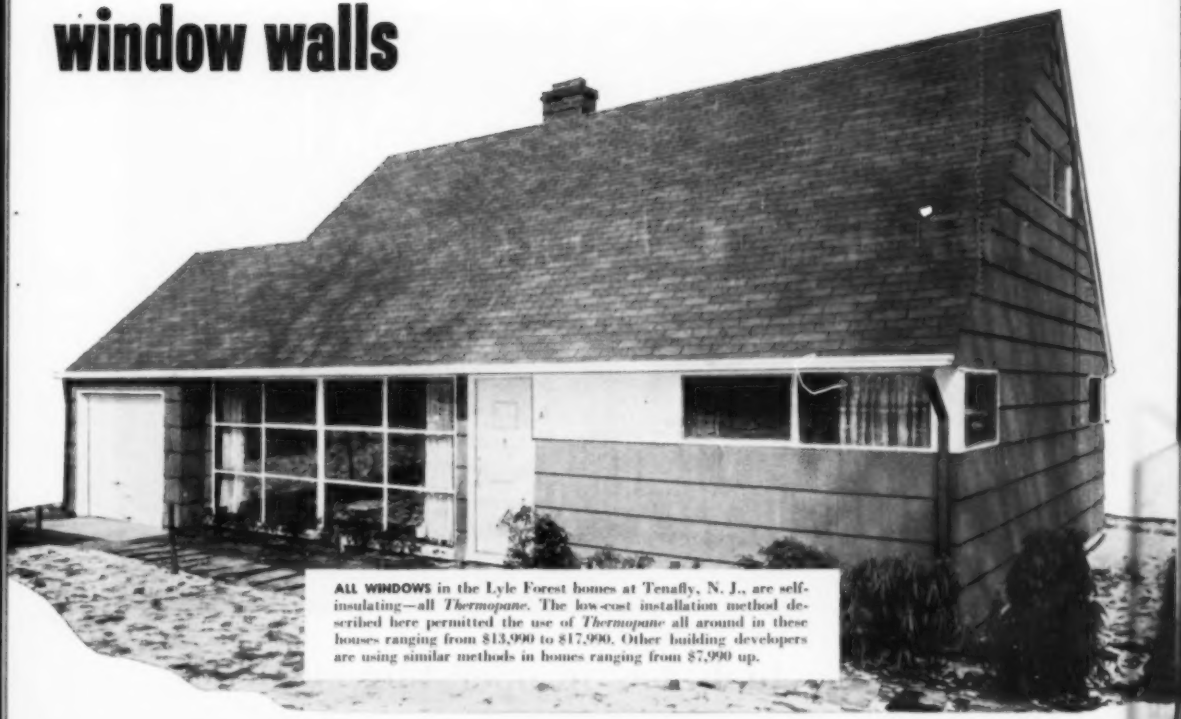
Thermopane



MADE ONLY BY **LIBBEY·OWENS·FORD GLASS COMPANY**

4711S Nicholas Building, Toledo 3, Ohio

window walls



ALL WINDOWS in the Lyle Forest homes at Tenafly, N. J., are self-insulating—all *Thermopane*. The low-cost installation method described here permitted the use of *Thermopane* all around in these houses ranging from $13,990 to $17,990. Other building developers are using similar methods in homes ranging from $7,990 up.

4. Aluminum ventilators of projected type are inserted into openings of wood frame in a bed of glazing compound. Wood screws hold them in place.

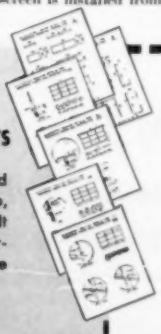
5. *Thermopane* (standard 42½" x 22½" unit) is installed in aluminum ventilators as in any other face-glazed metal sash. Aluminum screen is installed from inside.

6. Final result, a sales-appealing window wall that makes the living room seem larger by being opened to the outdoors. *Thermopane's* insulation assures comfort in winter.

SEND FOR FULL INFORMATION...

Mail the Coupon... FREE DETAIL SHEETS

We will be glad to provide full details on framing and glazing of the window wall described here. Also, information on the ways other builders have built *Thermopane* window walls at low cost. Get the information now—it's a smart way to provide more house for the money.



Libbey·Owens·Ford Glass Company
47115 Nicholas Bldg., Toledo 3, Ohio

Please give me complete information on installation methods for low-cost window walls of *Thermopane*.

Name_____

Address_____

I am planning to build_____houses in next 12 months

in $_____class.

Xavier Hospital, Dubuque, Iowa. Architects and engineers—Schmidt, Garden & Erikson, Chicago.

...high, too, in operating efficiency

"The patients in this hospital are benefiting from the very latest ideas in structural and operating efficiency." (From Hospital Management feature story about Xavier Hospital, Dubuque, Iowa.) Vital to this *operating efficiency:*

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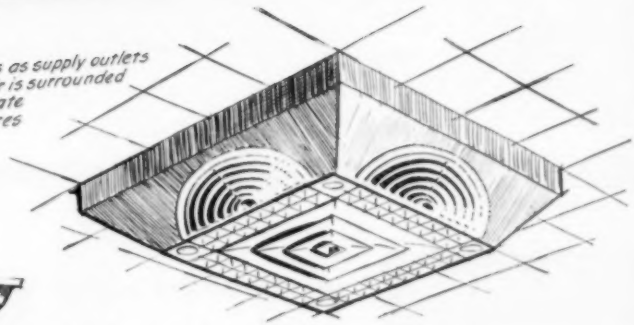
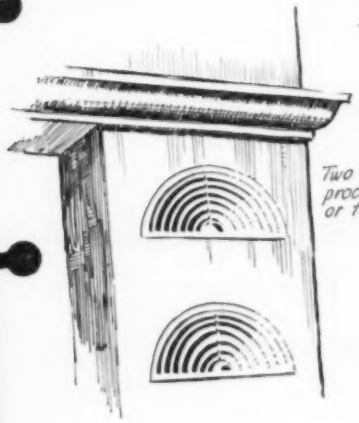
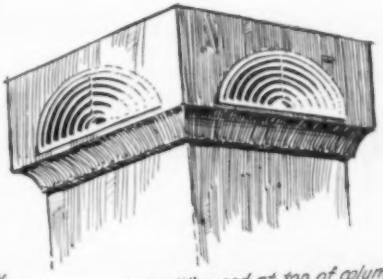
ideas for using ANEMOSTAT AIR DIFFUSERS



Type W Anemostats as supply outlets
Type E for return air is surrounded
by narrow egg crate
fluorescent fixtures



Two Type W's at side of
proceniun arch for auditorium
or theatre installation



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Type W's used at top of column
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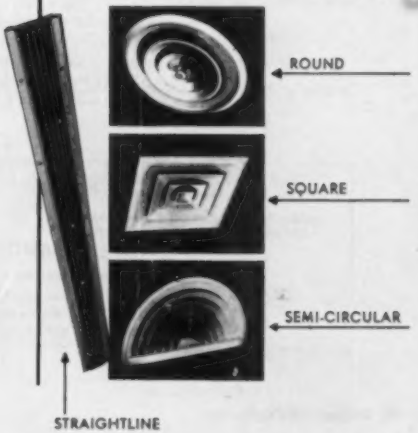

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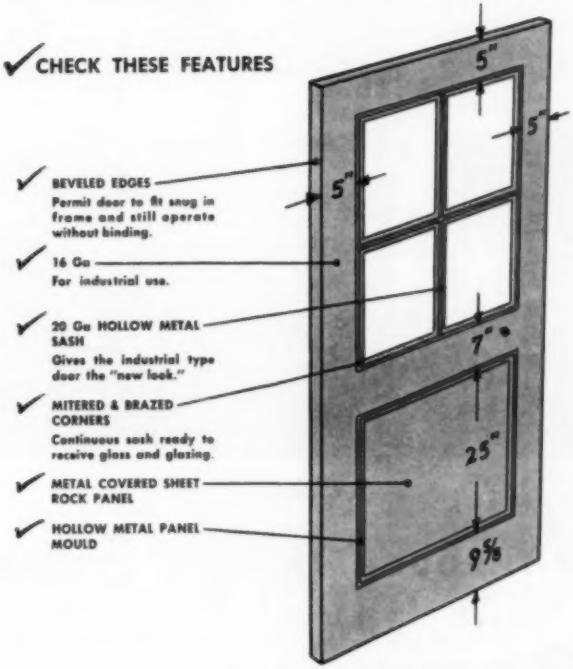
RICHMOND ANNOUNCES A NEW INDUSTRIAL TUBULAR STEEL DOOR

The "Specs" are interesting!

✓CHECK THESE FEATURES



✓ **BEVELED EDGES**
Permit door to fit snug in frame and still operate without binding.

✓ **16 Ga**
For industrial use.

✓ **20 Ga HOLLOW METAL SASH**
Gives the industrial type door the "new look."

✓ **MITERED & BRAZED CORNERS**
Continuous sash ready to receive glass and glazing.

✓ **METAL COVERED SHEET ROCK PANEL**

✓ **HOLLOW METAL PANEL MOULD**

CONSTRUCTION DETAILS

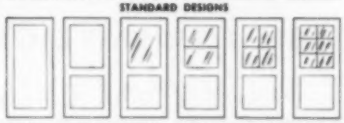
of Richmond "MD" Tubular Steel Door

Section thru glass moulding

Section thru mullion

Section thru panel moulding

STANDARD DESIGNS



SPECIFICATIONS

The contractor shall furnish and install model "MD" Industrial Tubular Steel doors as manufactured by The Richmond Fireproof Door Company, Richmond, Ind. in all door openings except as otherwise noted on drawings or herein specified.

Doors shall be constructed of 16-gauge stiles and rails and all joints shall be welded. Butt and lock reinforcements are to be provided for hardware cut-outs. Twenty-gauge rolled steel mouldings are to be provided around panels and sash openings. Except for the loose glass stops, there shall be no exposed screw heads at sash openings or panel mouldings. Panels shall be ¼" asbestos, glued between two sheets of 20-gauge sheet steel. The steel sheet covering on panels is to extend beyond the edge of asbestos and lap the lip extending from the stile and rail tubes. The stiles and rails are not insulated.

Doors shall have 5" stiles and top rail, 7" center rail, and 9⅝" bottom rail, all dimensions exclusive of moulding. Stiles shall have standard ⅛" bevel, and all doors shall be 1¾" thick.

Doors may be manufactured in any size up to:

4'0" x 8'0" for 16-gauge stiles and rails.

All doors shall receive baked on shop coat of red oxide primer.

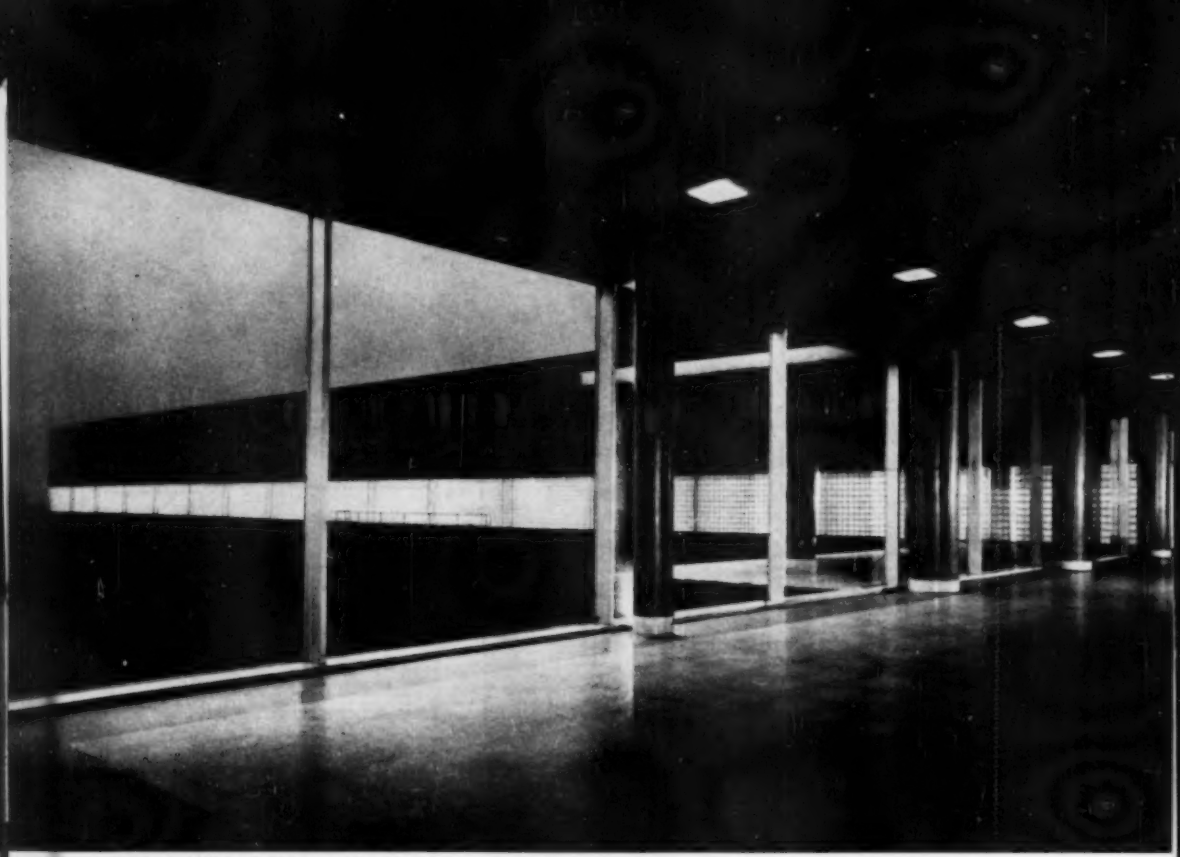
The Richmond Fireproof Door Co.

RICHMOND, INDIANA

THE RICHMOND FIREPROOF DOOR COMPANY
P. O. BOX 97, FRIENDS STATION, RICHMOND, IND.

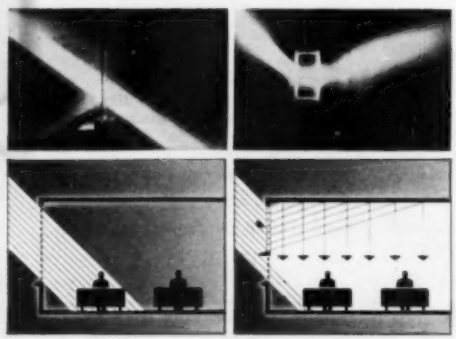
Gentlemen: Please send me booklet describing Richmond's new industrial tubular steel door.

Name .....
Company .....
Address .....
City ..... State .....



Chicago's gigantic South District Filtration plant gains light, cuts heating and maintenance costs with Insulux Glass Blocks that resist corrosion, condensation, need no painting, never rust or rot. Designed by Paul Gerhardt, Jr., constructed by S. N. Nielsen Co.

DESIGN FOR DAYLIGHT THROUGH *Daylight Engineering*



Direct sun causes uncomfortable brightness near windows, extreme contrast in other parts of room. Insulux Fenestration (glass block plus vision strip) directs and spreads daylight to ceiling, keeps brightness at comfortable levels, provides vision and ventilation.

Old style windows need shades, blinds or awnings, that shut out an average of 44% of the light, to reduce sunshine to tolerable levels. When pulled up and down these light-reducers make a crazy-quilt effect on the faces of beautiful buildings.

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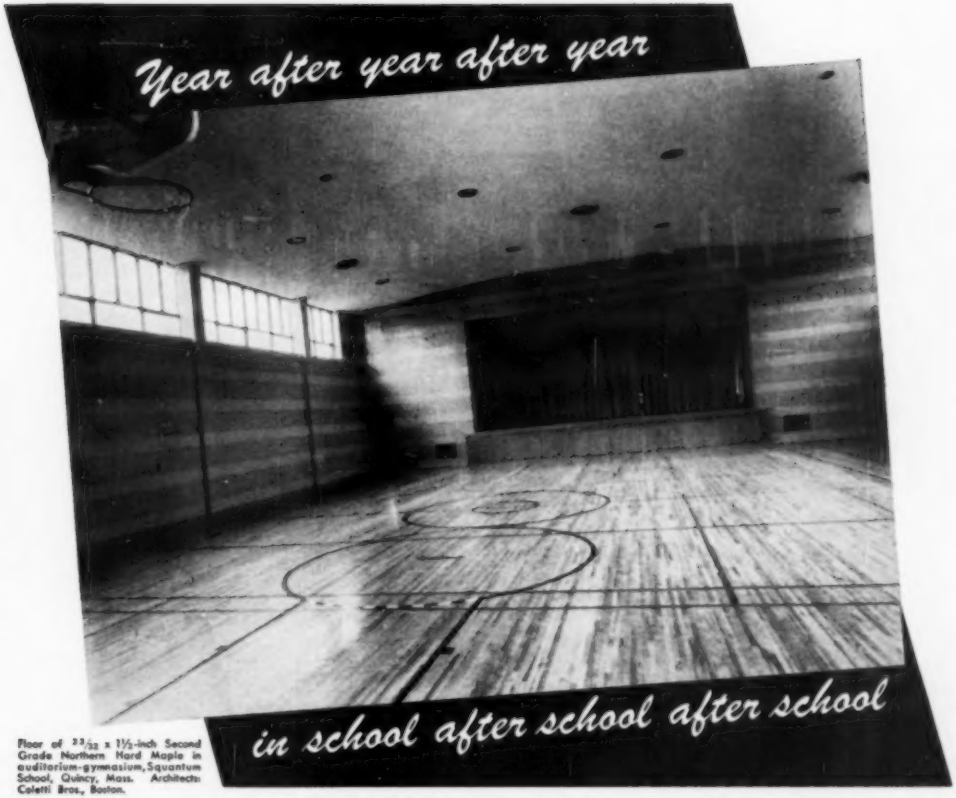
An Insulux Fenestration System also picks up early morning and late afternoon light and refracts these low-angle light rays over the ceiling surface. The lighting effect is like having the building turn with the sun.

Our Daylight Engineering Staff is at your service. Call on it for information, specifications or help in applying the principles of Insulux Fenestration to your special needs. Write: Daylight Engineering Laboratory, Dept. PA-11 Box 1035, Toledo 1, Ohio. *Insulux Division, American Structural Products Company, Subsidiary of Owens-Illinois Glass Company.*

INSULUX GLASS BLOCK

INSULUX FENESTRATION SYSTEMS

—— by the pioneers of Daylight Engineering



Floor of 33/32 x 1½-inch Second Grade Northern Hard Maple in auditorium-gymnasium, Squantum School, Quincy, Mass. Architects: Coletti Bros., Boston.

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● Each new maple school floor makes this fact plainer: **MFMA** Northern Hard Maple is "the finest school floor that grows." Consider the reasons, as you plan your new school facilities:

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See Sweet's

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BEECH AND BIRCH

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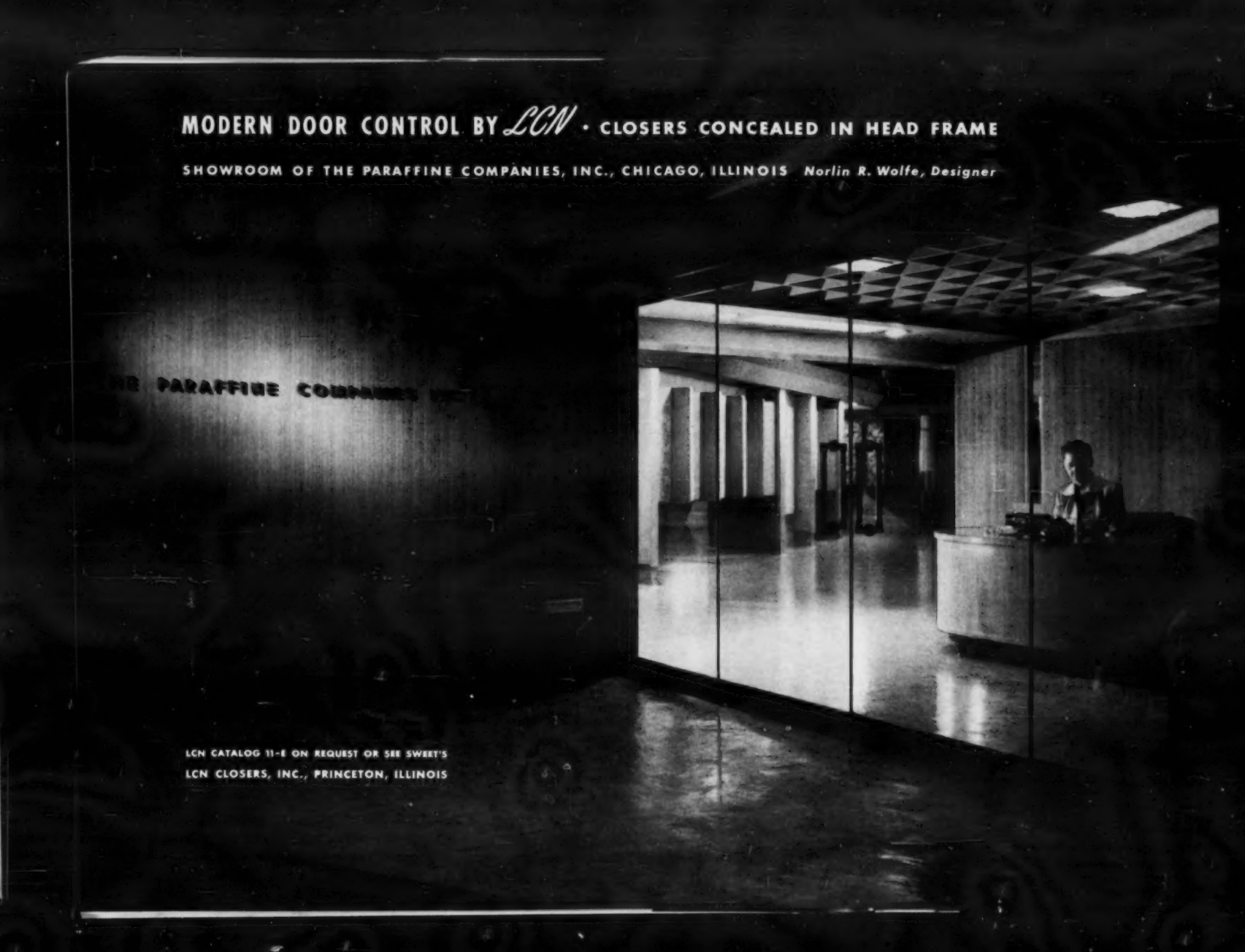
SHOWROOM OF THE PARAFFINE COMPANIES, INC., CHICAGO, ILLINOIS *Norlin R. Wolfe, Designer*



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School contains sixteen (16) rooms and a gymnasium and houses three hundred and twenty (320) pupils. One stoker using one hundred and ten (110) tons of rice coal per year requires twenty two (22) man hours for a complete heating season. The building is cared for by a single custodian who performs all other janitorial duties as well.

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This is a seventeen (17) room and gymnasium unit housing two hundred and ninety two (292) pupils. One stoker using one hundred and fifty (150) tons of #1 Buckwheat per year requires ½ man hour of labor every two and one half (2½) days during the heating season. A single custodian performs all other janitorial duties.

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"YEH, LOOK AT THESE FELTS. THEY'RE NOT ONLY ROTPROOF AND WEATHERPROOF, BUT FIREPROOF!"
"THAT'S THE ROOF WITH ASBESTILE* FLASHINGS FOR ADDED PROTECTION!"

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Each ply is a flexible covering of stone!

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Distinctive Bruce Block Floors are ideal for modern as well as formal styles, and can be installed directly over concrete or wood subfloors. The new, glamorous Ranch Plank Floor (with alternate widths and walnut pegs) is perfect for rambling, informal homes in all price ranges. Then, of course, there's the ever-popular Bruce Strip Floor that's in good taste in any setting.

For a most pleasing and decorative effect at reasonable cost, use two or even three types of Bruce Floors in the same home. For example, Ranch Plank in living room and den, Blocks in dining room, Strip flooring in bedrooms.

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When you specify *prefinished* Bruce Hardwood Floors you give owners added beauty, durability, economy, and ease of upkeep. The famous "Scratch Test" pictured here demonstrates that the Bruce factory-finish does not scratch, or chip like a surface finish. It wears longer because it's "in the wood."

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High-Efficiency 'Incor' Performance

Speeds Erection of Ravenswood Houses—West Section

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RAVENSWOOD HOUSES (West Section) Long Island City

Architect: **THE FIRM OF FREDERICK G. FROST JR.,** New York

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COLONIAL SAND & STONE CO., INC., New York

Contractor, Concrete Frame:
CAYE CONSTRUCTION CO., INC., Brooklyn, N. Y.

● One of New York City Housing Authority's largest projects is 2166-apartment Ravenswood Houses, Long Island City. Housing Authority projects are quality-constructed in every last detail—and they move ahead at driving speed. Because at today's costs, time saved is money saved—and how!

All last winter, frame concreting on the fourteen 6-story units in Ravenswood's west section clicked ahead on precise schedule—for CAYE CONSTRUCTION CO., INC switched to 'Incor' 24-Hour Cement. In cold weather, column forms were stripped in 24 hours, slabs in 48 hours. That kept the job right on schedule—and saved a complete set of forms. *Big money, that, at today's form costs!*

Came Spring—and things were running so smoothly that they kept on using 'Incor'. For high-efficiency 'Incor' performance knows no season. Straight around the calendar, 'Incor'* promotes the smooth-running, time-saving efficiency on which today's close-margin profits depend. Send for illustrated booklet, 'Cutting Concrete Costs'—write Lone Star Cement Corporation, 100 Park Ave., New York 17.

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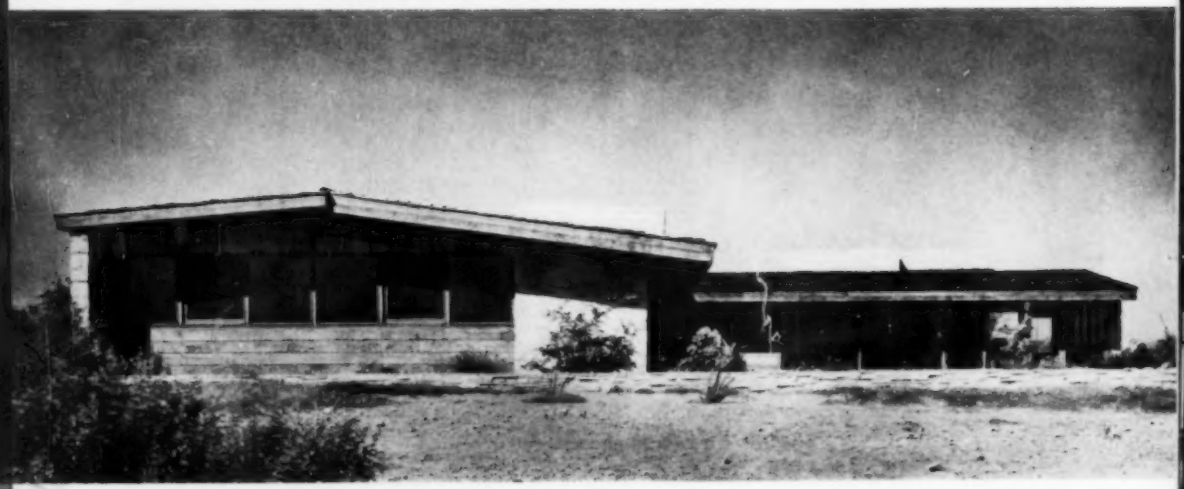
LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 15 MODERN MILLS, 27,500,000 BARRELS ANNUAL CAPACITY

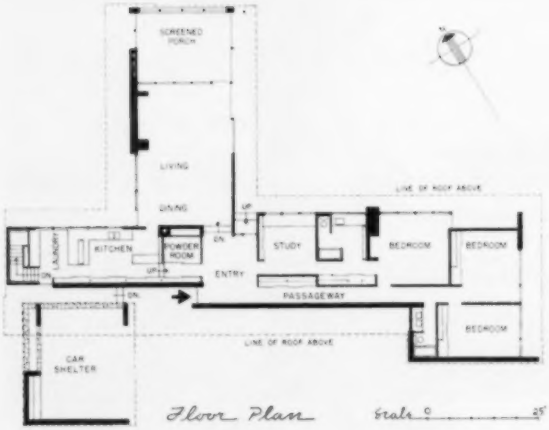
A year-round home on the desert, the house is so oriented that it is turned away from the hot mid-day sun and is opened to the broad desert and mountain views to the north and east. Distant view at top of page, is from the southeast.

Below—detail of south (approach) front, with high window band (for cross ventilation) well recessed from the edge of the roof overhang. *Photos: Julius Shulman*

House: Paradise Valley, Arizona

SCHWEIKHER & ELTING, ARCHITECTS

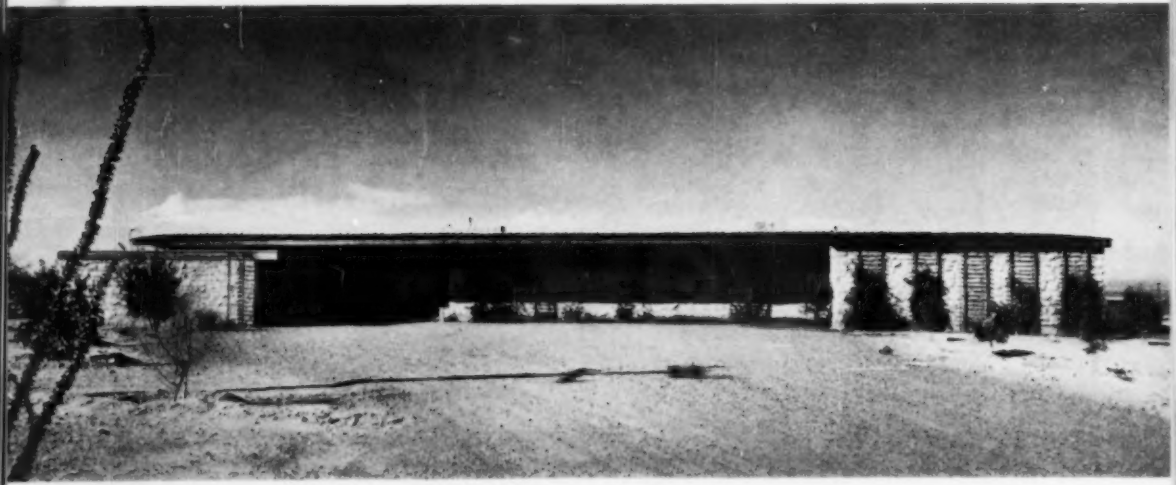




Above—general view from the east; bedroom wing, left; living-dining room extending to the north, at right of photo. Exterior walls are tufa masonry and redwood-surfaced frame.

Below—the south (approach) front of the house, windowless except for the high strip above the central masonry mass.

Acrosspage—left: service (west) end of the house, with masonry wall of carport at right. Right: garden detail, looking from corner of bedroom wing to living room-porch wing which opens up on three sides.



HOUSE: PARADISE VALLEY, ARIZONA

program Year-round home for a family consisting of the parents and two children. A study was required, both for occasional business uses and to house the owner's sport equipment, guns, etc. A budget of approximately $35,000 available.

site Twenty-acres on the edge of the desert. Hills lie to the west, north, and south; the desert ranges from northeast to southeast.

solution The house is placed as far back from the road as practicable and oriented to turn its back toward the hot mid-day sun and open up to the views of the desert and hills across the valley, toward the east and north. High strip windows, deeply recessed under the roof overhang on the north, provide cross ventilation through the spread-out house; windows to the west in the dining area of the main living room provide views of desert sunsets.

materials and methods CONSTRUCTION: Concrete foundation. *Walls:* either wood frame surfaced with shiplap redwood or volcanic tufa stone masonry. *Interior surfaces:* stone; redwood; plywood. *Floors:* concrete and stone flagging. *Roof:* wood frame, surfaced with hand-split cedar shakes. *Insulation:* wool batts. *Fenestration:* redwood sash (fixed, sliding, and bottom hinged); plate and flat-drawn glass. *Doors:* solid redwood plank; glazed entrance door.

EQUIPMENT: *Heating:* mechanically circulated warm air; oil-fired furnace; thermostatic controls; expansion tank pump. *Air conditioning:* evaporative type unit cooler. *Piping:* galvanized steel. *Lighting:* fluorescent units in ceiling coves; standard plug-in outlets; rigid pipe conduit.

the architects *Paul Schweikher:* U. of Colo. School of Engineering; studied painting at Chicago Art Institute, engineering at Armour Inst. of Tech. B.F.A.: Yale U.; in charge of design in a Chicago architectural firm, 1930; own practice, 1933, in association with the late Theodore W. Lamb. *Winston Elting:* Princeton U.; Ecole des Beaux Arts, Paris; work in Chicago offices and on low-cost housing in Washington, D. C.; own practice, 1937; joined Schweikher and Lamb, 1940. Office closed from 1942 to 1945 while both Schweikher and Elting served in the Navy.

Right—detail of entrance area, with front door in the masonry wall at left, and passage through to kitchen, center.

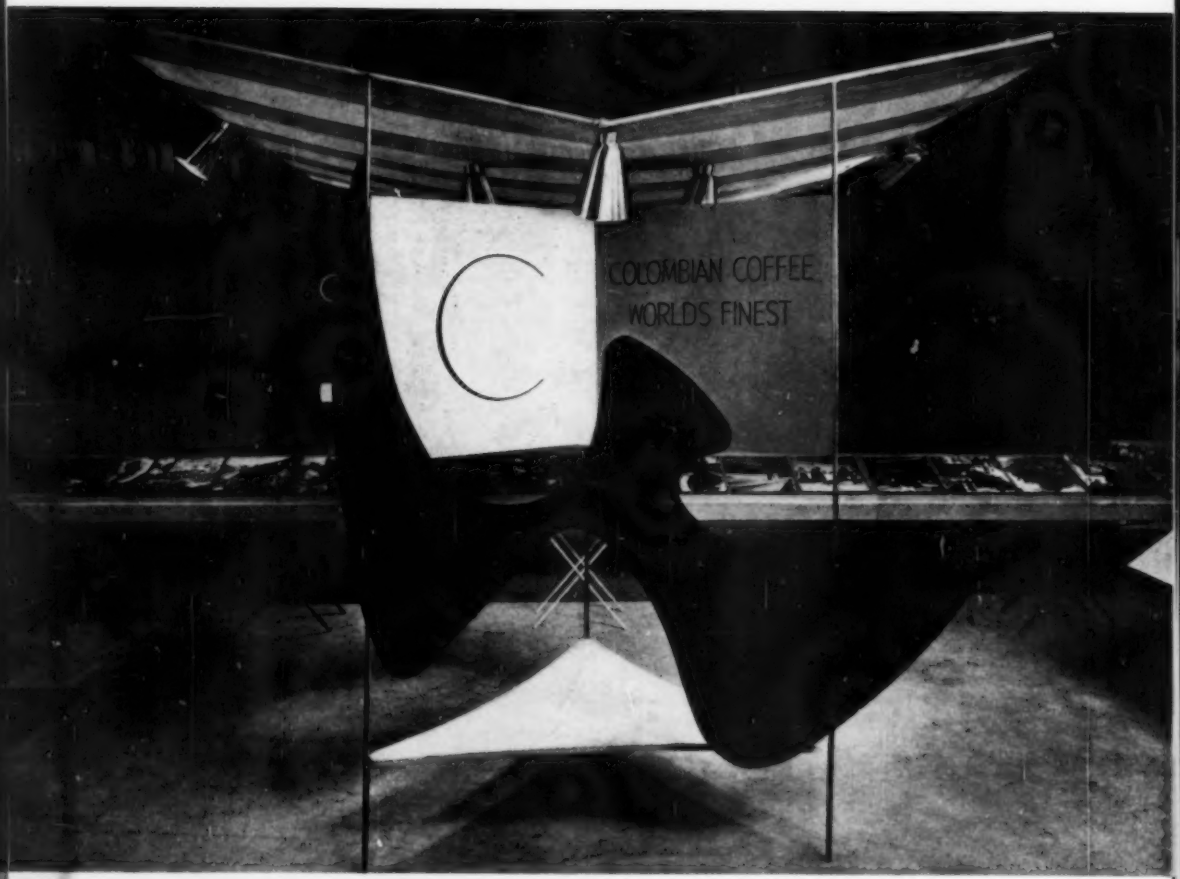
Below—looking from entrance area through the long living room and along the paved, eastfacing outdoor terrace.

Right—detail of the living-room fireplace; the off-center roof construction provides duct spaces; light coves, with fluorescent lamps, provide general night-time illumination and help integrate structure and finished design.

Above—looking back toward entrance area from the living room, showing the high window strip at the top of the southern masonry wall.

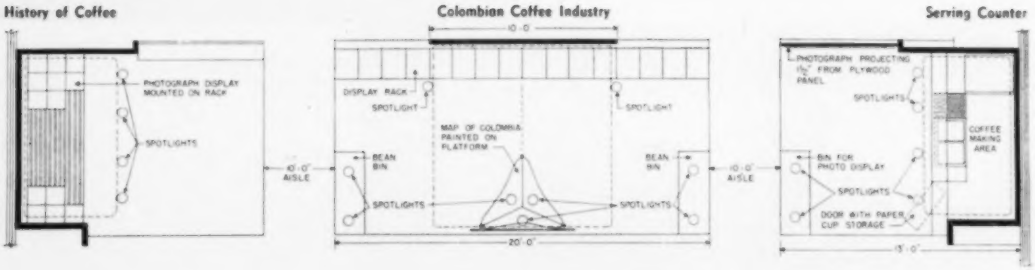
Two photos at right—details of the spacious kitchen with concrete floor, redwood and plywood wall and ceiling surfaces.

Left—the owners' bedroom. On the wall facing the fireplace, a door leads to a private, north terrace.



Trade Fair Exhibit: Chicago, Illinois

EDWIN HARRIS, JR., ARCHITECT



Arresting display and informative advertising at an industry-wide level were accomplished within the discipline of excellent design when Edwin Harris, Jr., architect of New York, was commissioned by the National Federation of Coffee Growers of Colombia to create a three-unit exhibit for the recent International Trade Fair in Chicago. The booths, which faced the central lounge provided for the thousands of Fair visitors, were of distinctive architectural quality, as well as an effective presentation of the coffee industry's story. Brilliant colors dramatized the forms created and emphasized the fiesta character of the exhibit.

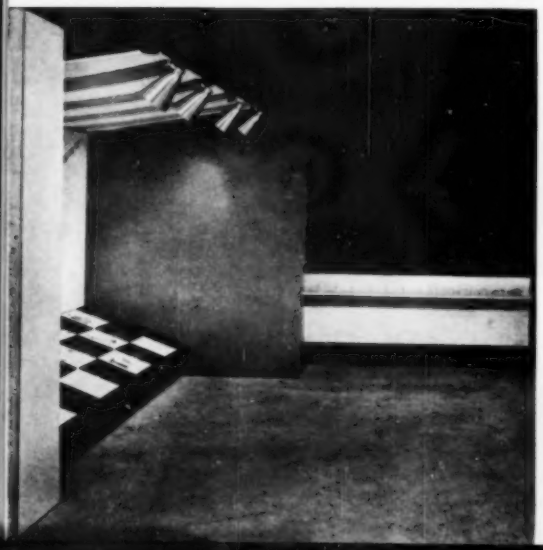
Harris approached this commission as an architectural problem, analyzing the client's advertising objective and ascertaining the budget and exhibit space limitations; then deducing that the exhibit would best be "a three-dimensional poster in full color" telling its story so simply that it could be absorbed in a glance. Preliminary sketches gave the client several alternatives, the chosen solution was designed accurately and cost estimates were prepared before competitive bidding was invited. The result of this professional handling was that the exhibit cost considerably less than the usual commercial display project. Harris also supervised the construction and erection of the exhibit by Horbatuck Displays, Inc., New York.

Certain elements of the exhibit—the cases for showing 16 transparencies, depicting the complete story of the culture of Colombian coffee (photo across page); the bent plywood bins, containing various types of coffee beans and coffee cherries, and the large "History of Coffee" panel, lively colored drawings by Frank Stork, delineator and designer, New York—were durably constructed for continuing publicity activities of the client. Key colors used for the exhibit were: bright red (background panel across page), yellow and white (awnings), bright blue (counters, bins, etc.) and velvety black (free form in foreground).

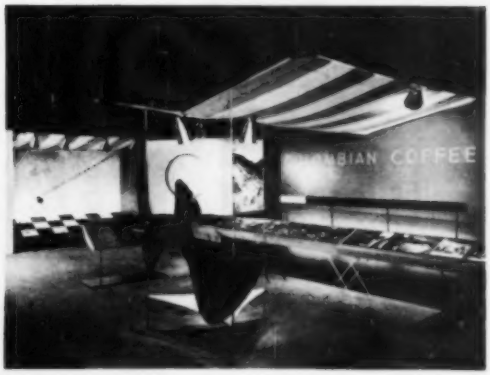
Photos: Gottscho-Schleisner

Counter for serving coffee

Cartoon "History of Coffee" Display



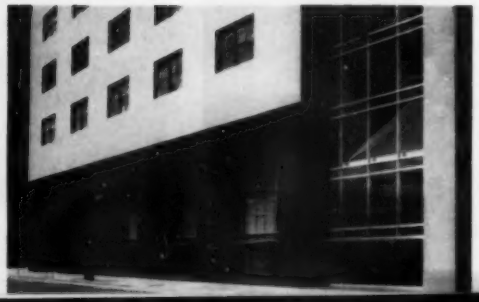
View through central display unit



Toll Exchange: Oakland, California

HARRY A. THOMSEN & ALECK L. WILSON, ARCHITECTS

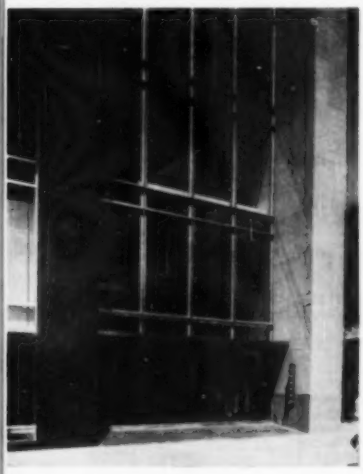
John J. Gould, Structural Engineer
Harry S. Haley, Mechanical Engineer
Lyle E. Patton, Electrical Engineer
Dames & Moore, Foundation Engineers
Dinwiddie Construction Co., General Contractors

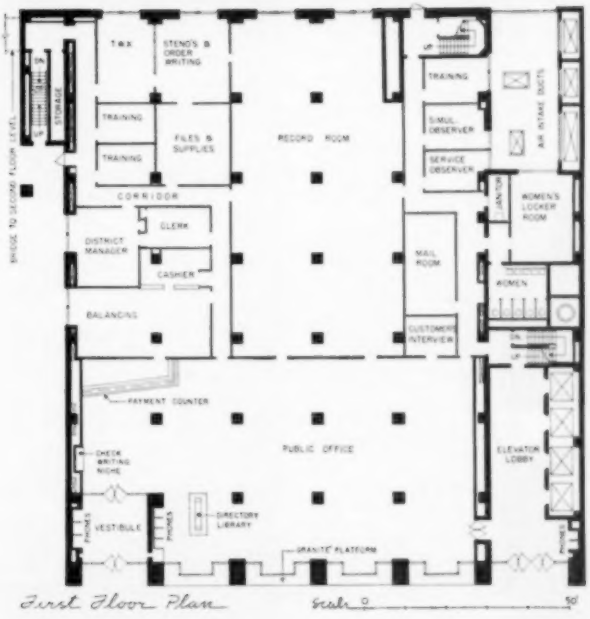


This 15-story structure is an important link in the ever-widening "No. 4 Crossbar Toll Switching System," whereby telephone calls are made directly to distant cities that are similarly equipped. Given a number, the operator presses numbered or lettered keys in the proper code (Chicago, for example, is 4LD), which immediately connects with the other city; then she simply dials the local number, with no assistance from intermediate operators.

Because of the building's prominent location, all four exterior walls are surfaced with terra cotta. Ground-floor plan, with separate entrances for business offices (photo at right) and elevator lobby (photo immediately below), is shown at bottom of page. On the second floor are a cafeteria, lounge, quiet room, locker room and toilets. Other floors are for telephone equipment.

Photos: Philip Fein, except as noted





program A toll-center building to serve the new "No. 4 crossbar" direct-dialing, long-distance telephone system. Exceptionally heavy construction was essential both to carry the load of the equipment and to resist seismic stresses. Size of the equipment demanded tall floor-to-floor heights.

site Level, inside lot facing east, with an existing 11-story telephone building on the south, with which the new building connects.

solution A 15-story building with basement and penthouse, with all floors designed for equipment and service rooms. Dining facilities with cafeteria, kitchen, rest room, quiet room, locker room and toilets, on second floor; a glazed connecting bridge at this level makes these facilities available to occupants of the adjoining telephone building. On the street floor are a public business office, district manager's office, mail room, record room, private branch telephone exchange, and various training and employment offices. To avoid the use of equipment doors on each floor, window openings are all approximately 9-feet square so that equipment can be moved through any one of them, as need arises. Floor-to-floor heights are approximately 18-feet. To support the equipment, typical floors were engineered for loads of 150 to 175 lbs. per sq. ft. The slab for the eighth floor, which contains extra heavy telephone-power equipment, was designed to support a live load of from 500 to 800 lbs. per sq. ft.

To resist vertical loads, the steel structure was riveted, while half I-beam sections connected to the top flanges of the floor girders were joined to the columns with high-strength bolts. Steel spandrel trusses were attached to the outside flanges of columns.

Exterior walls of the two lower floors are finished with red granite; stainless steel was used for the sash on these floors. Above the second floor, ceramic veneer is the wall surfacing, and windows are double hung, steel frame, with clear plate glass.

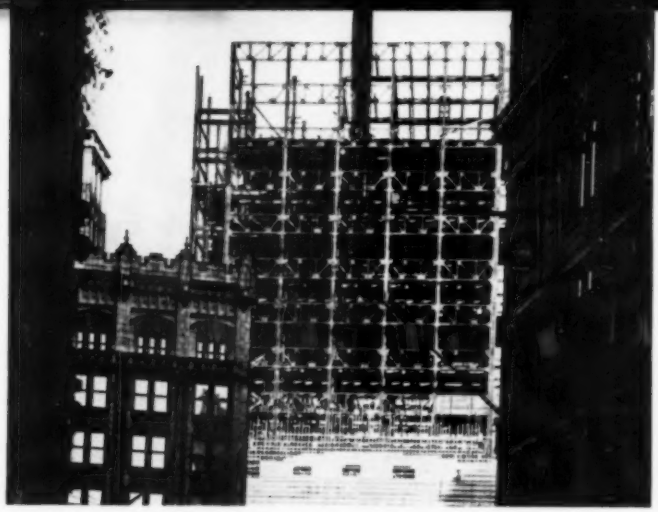
With a view to providing ample natural light on the principal stairway and in elevator lobbies, a glazed, vertical element extends the full height of the building and above the roof to the top of the elevator penthouse and cooling-tower enclosure. Sash in this window are vertically pivoted, and the projecting inside sills provide a means of cleaning the windows from the inside.

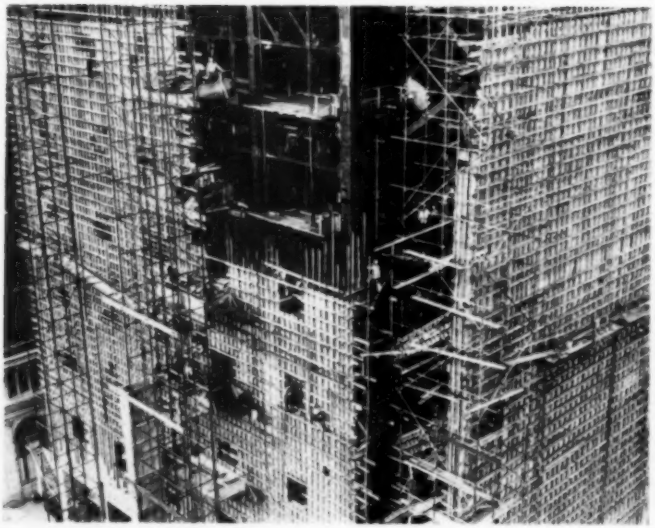
The building is steam heated by three low-pressure boilers, with combination oil and gas burners. Ventilation is provided by supply fans, and used air is carried off by exhaust fans on each floor. Cooling is provided by centrifugal machines equipped with chiller and condensers. Lighting for the first-floor public office space comes from flush, fluorescent fixtures; other offices use suspended fluorescent units—both of 45-foot candle power.

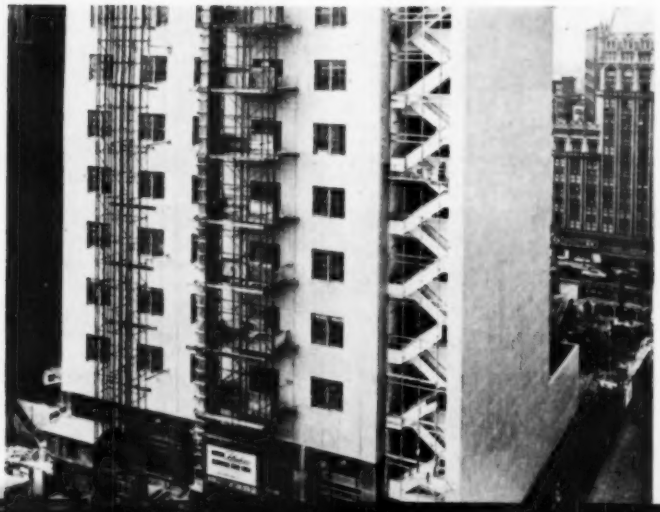
A few believe-it-or-not facts and figures: the building includes 7100 tons of structural steel; 27,000 cubic yards of concrete; 1750 tons of reinforcing steel; 49 tons of aluminum ducts; 37 tons of sheet iron. Floor covering required 200,000 square feet of linoleum. Exterior walls use 145,000 square feet of ceramic terra cotta, and 8000 square feet of granite. There are 110 miles of rubber-covered wire in the building; 30 miles of steel conduit; approximately 5000 fluorescent fixtures, and more than 3½ miles of fluorescent tubing.

the architects *Harry A. Thomsen* (top photo): associated with the late George W. Kelham, 1911; a partner from 1923 to 1936; own practice until 1947, when the present firm was established.

Aleck L. Wilson (bottom photo): U. of Calif.; work with York & Sawyer, New York; the late Timothy Pflueger, San Francisco, and with George W. Kelham, San Francisco. Association with Harry A. Thomsen since 1944; partner since 1947.







Typical Floor Plan Scale 0 20'

MATERIALS AND METHODS

CONSTRUCTION: Foundation: portion on concrete mat; remainder on steel pipes filled with concrete, surfaced outside with terra cotta and granite; inside, with plaster, marble, tile, and wood panels. **Floors:** reinforced concrete slabs; terrazzo, asphalt tile, linoleum, rubber tile, and composition. **Insulation:** acoustical—metal pan, mineral fissured fiber tile; thermal—cellular glass on roof. **Roofing:** 5-ply built-up composition. **Fenestration:** double-hung steel sash, weighted balancers; steel pivoted sash at main stair over entrance; polished wire plate glass; tempered plate glass panels; clear plate glass. **Partitions:** metal stud; movable steel; marble (in toilets). **Doors:** hollow metal; rolling steel shutter overhead doors; baked enamel on hollow steel; tempered plate glass.

EQUIPMENT: Heating and air conditioning: low-pressure vacuum steam system; gas and oil-fired low pressure steel boilers; cast iron radiators; black wrought iron piping; aluminum ventilating ducts; controls; centrifugal type air-conditioning system, using freon and cooling towers; air diffusers; fans; dust stop; temperature regulation of heating and cooling; copper cooling coils. **Electrical:** 3-4000 amp., 250v.—3 pole 100,000 RMS ampere interrupting rating, electrically operated draw-out air circuit breakers; low-reactance bus from emergency generators to main switchboard; combination telephone and receptacle steel, underfloor duct throughout office areas; rubber-covered copper wire; galvanized, rigid conduit; emergency light and power plant. Both fluorescent and incandescent units. **Elevators:** high-speed, gearless; signal control.

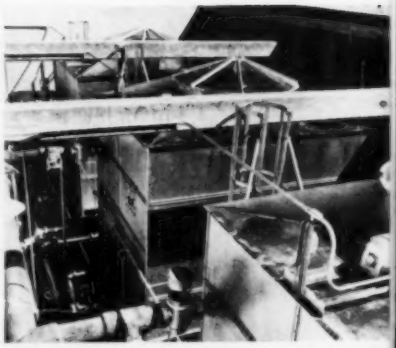
Photos at left—three stages of construction. Steel frame (top) shows the pattern of the steel spandrel trusses that are attached to the outside flanges of the columns. Center: concreting in progress. Bottom: terra cotta veneering. The new building is attached to the old (at left) by a bridge at the second-floor level.

Progress photos: Albert "Kaye" Harris & Associates

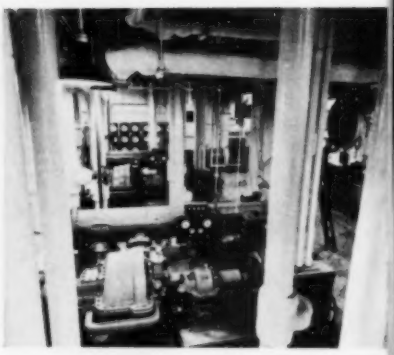
TOLL EXCHANGE: OAKLAND, CALIFORNIA

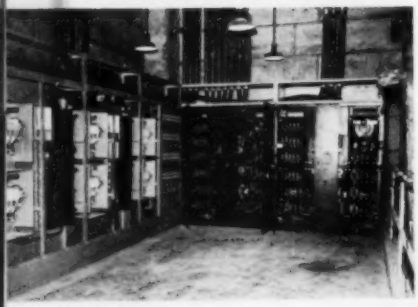
Photos at left—top: the ground-floor public business office, with flush-mounted fluorescent lighting strips in the acoustical-tile ceiling, and air diffusers aligned in alternating panels. Center: detail of the under-floor combination telephone and receptacle steel duct that occurs throughout the office areas. Bottom: the boiler-room control switchboard.

Photos: Albert "Kaya" Harris & Associates

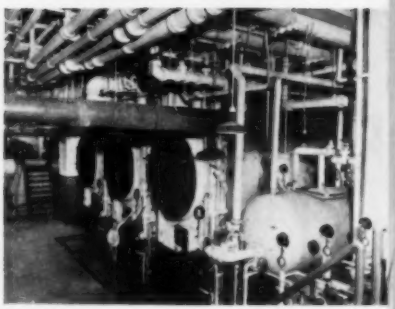


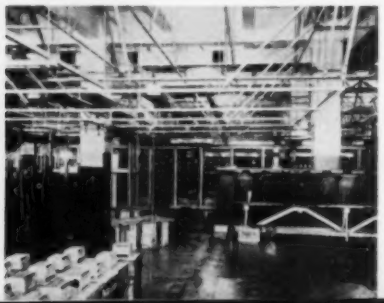
Photos at right—top: mechanical-draft cooling towers in the rooftop penthouse. Center: self-contained centrifugal refrigerating machines, along one wall of the boiler room. Bottom: boilers and water heater, in the basement of the building.

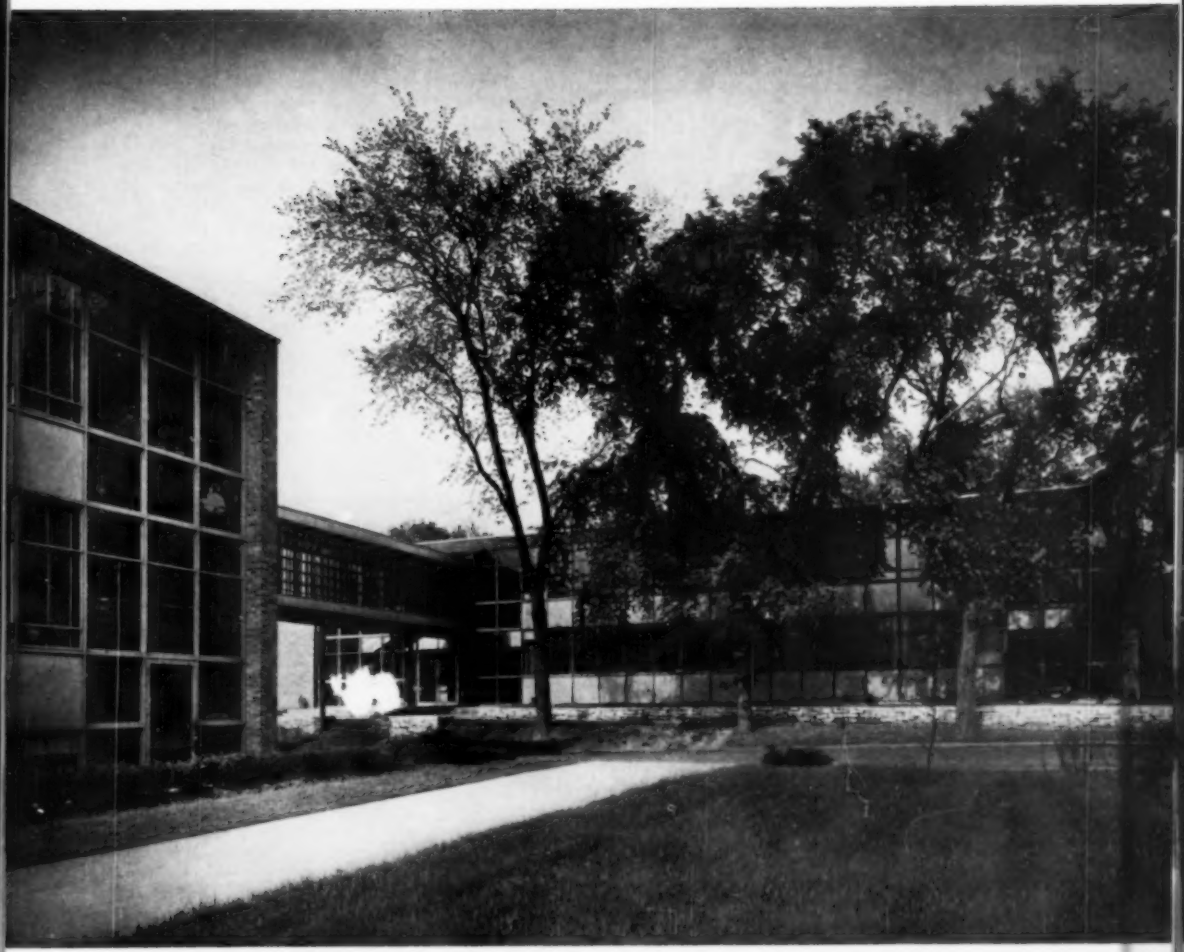




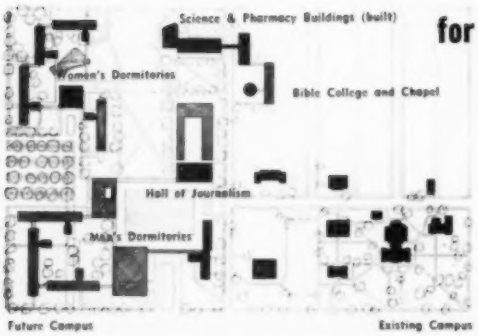
A view of a typical equipment floor, showing the complexity of equipment—and this is only a fragment—required to handle direct, long distance dialing.







Science and Pharmacy Buildings for Drake University Des Moines, Iowa



SAARINEN, SWANSON & SAARINEN, ARCHITECTS
BROOKS-BORG, ASSOCIATED ARCHITECTS

Foreword

Drake University has embarked on a long-range plan for expansion and co-ordination of its facilities that will result, in time, in a greatly enlarged new campus (see plot-plan, preceding page). First completed units in the program are the Science and Pharmacy Buildings presented in this study—the Harvey Ingham Hall of Science, built with funds donated by the Gardner Cowles Foundation in honor of Harvey Ingham, long-time editor of the *Des Moines Register and Tribune;* and the Fitch Hall of Pharmacy, made possible through a gift from Fred W. Fitch, manufacturer.

We present these buildings as remarkably successful and beautiful examples of integrated design. We also consider it perhaps even more remarkable that an established institution of higher learning would commission and accept such unpretentious architecture and not only construct these two initial units, but also base its entire future program around the same design thesis. Behind this straightforward approach is Drake's present enlightened policy of using her funds to the limit in making education available to all possible applicants—and not spending a cent on the costly, the nonproductive, or the showy.

Background

When the gifts that made possible the construction of the Science and Pharmacy Buildings were first announced, and long before the architects were called in—before they were selected, in fact—a faculty committee, set up to act as an advisory group in planning the buildings, went to work to develop a program. Starting with basic criteria such as an estimate of Drake's permanent enrollment total and the emphasis that would be placed on the sciences in the curriculum, they then considered more detailed problems, such as laboratory sizes and staff required (whether lab work would involve presentation by one person or two); how many students could be properly taught in one laboratory session; trends in presentation of material; desirable proportion of group demonstration presentations to standard laboratory practice of individual participation; etc.

Out of these deliberations came many specific requirements and preferences. In the first place, following the university's avowed purpose of making the most of its funds, it was agreed that facilities should be functionally planned, in such a way as to give maximum utilization of space at lowest possible cost, and that wherever possible the function should be developed to co-ordinate the esthetic aspects of the building with the teaching program. The curriculum required that lab facilities should be provided that could train potential scientists as well as students not pursuing a science major but needing a sound understanding of basic scientific principles.

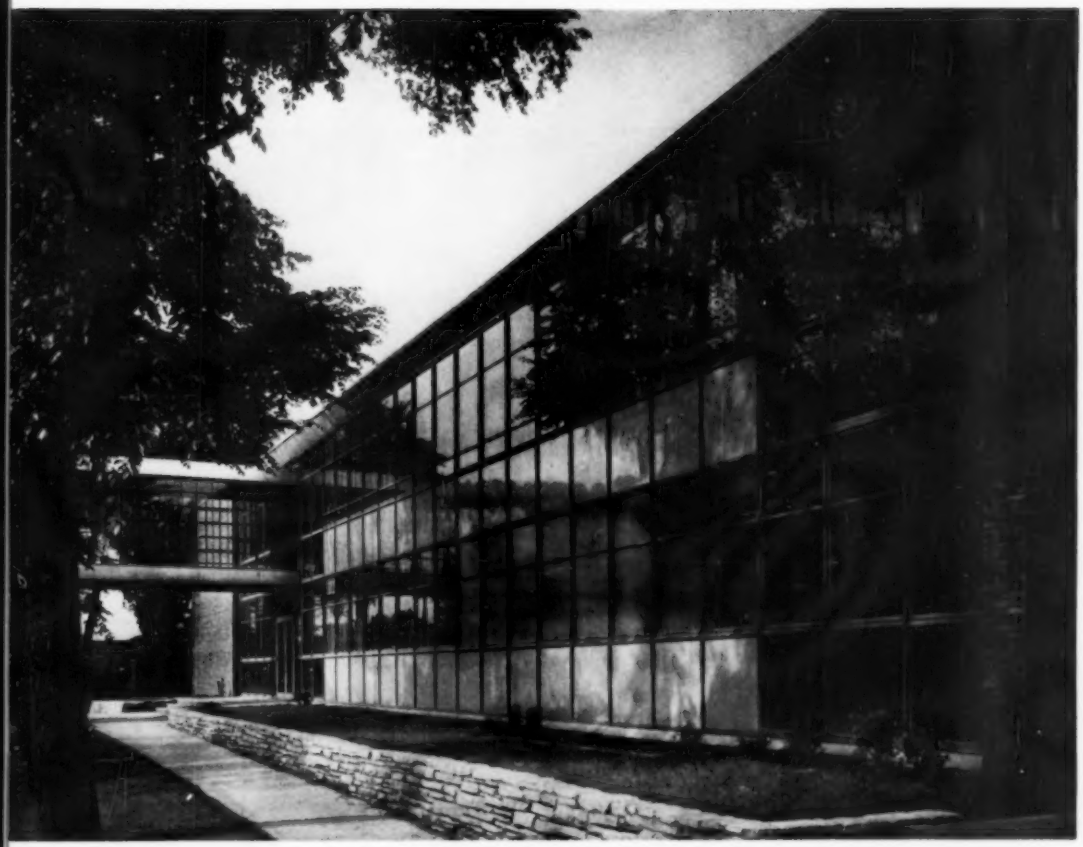
A factor that materially affected both the plan and mass of the buildings was the committee's decision that the Chemistry Department should be on the top floor because of the fume problem and that the Physics Department, because of the problem of vibration and its effect on sensitive instruments, should be on the ground level. Thus, assuming a three-story scheme (which was finally developed for the Science Building), this left a middle floor for the Physical Science and Biology Laboratories. These criteria were reinforced by the committee's consideration of the foot-traffic problem, inasmuch as the physical science and biology labs would have (in general) about twice the student load of the physics or the chemistry labs. Hence, these would be most efficiently placed on a central level of the Science Building.

Right: view of Harvey Ingham Hall of Science, from the southwest (Physics Department on ground floor, Physical Science and Biology Laboratories on first floor, and Chemistry Department on top floor). Doors at left of photograph lead into main entrance lobby and directly into upper part of the two large lecture halls.

Acrosspage: top—west façade of the Fitch Hall of Pharmacy (see detail of window wall, page 70), which is placed at right angles to the Science Building; bottom—Science Building from the southeast, showing (at right of photo) the bridge spanning the street and connecting the top floors of the two buildings.

Photos of completed buildings: Warren H. Reynolds: Photography, Inc.

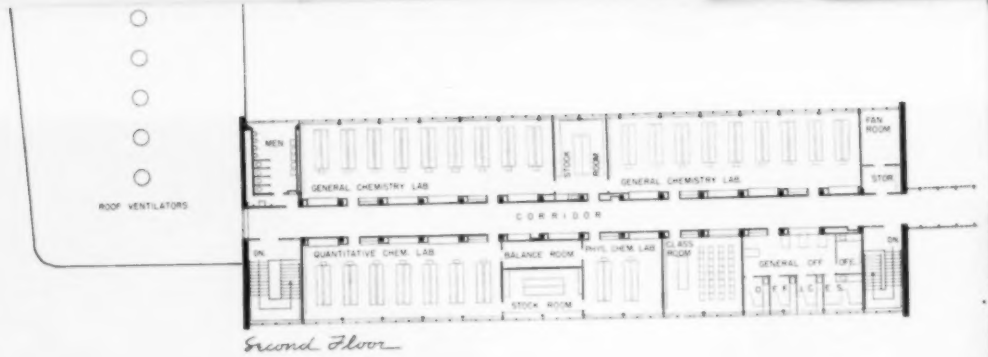
Construction photos: M. E. Rahm



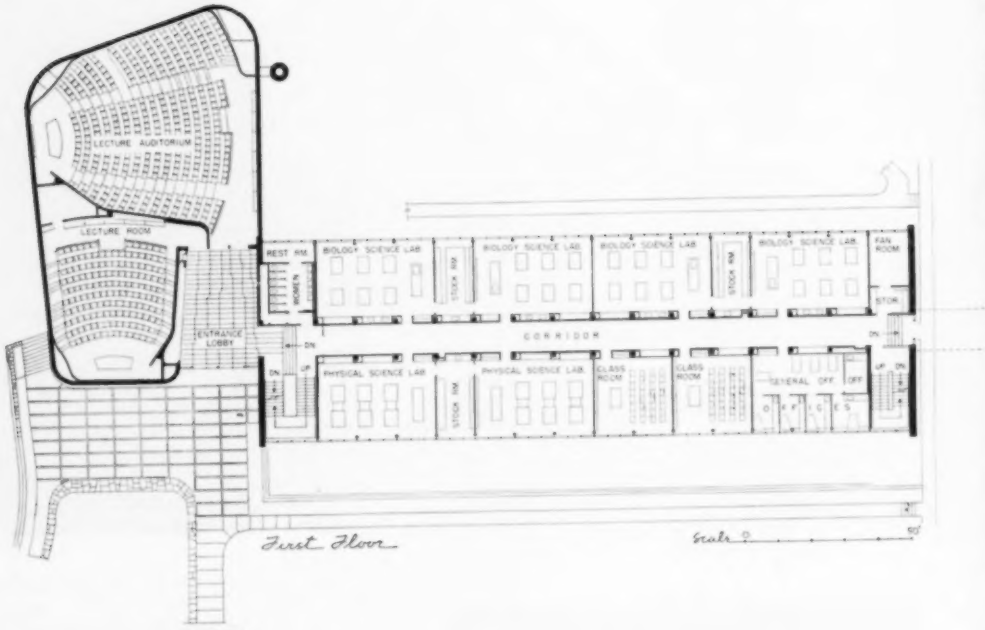
SCIENCE AND PHARMACY BUILDINGS: DRAKE UNIVERSITY

Two buildings were required—for science and for pharmacy—but the committee urged that they be organized so that the facilities of the science building could be jointly used. Furthermore, it was stated that some of the rooms in the Science Building should be available for any part of the university program; that the classrooms should be located for convenient use by other departments; and that the auditoriums or lecture halls should be arranged for ready use by all departments on the campus.

Typical of the detail that went into the program —and so, by the architects' translation, into the completed buildings—was the committee's notation that pharmacy students would normally spend their whole day in either Fitch or Ingham Halls, while students in other science programs would seldom be in the buildings for long periods of time. This factor led to the inclusion of individual lockers for pharmacy students, along the corridors of the Pharmacy Building (to keep books, coats, and supplies), while only temporary storage space—recessed, open racks —is provided in rooms of the Science Building for coats and books.



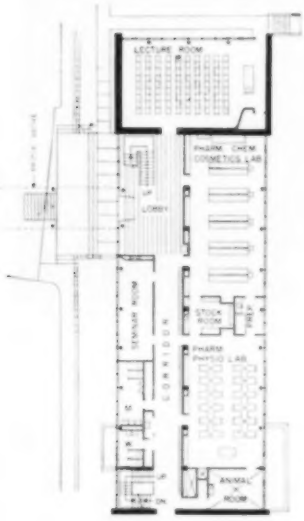
Second Floor



First Floor

Scale 0 50'

Ground Floor



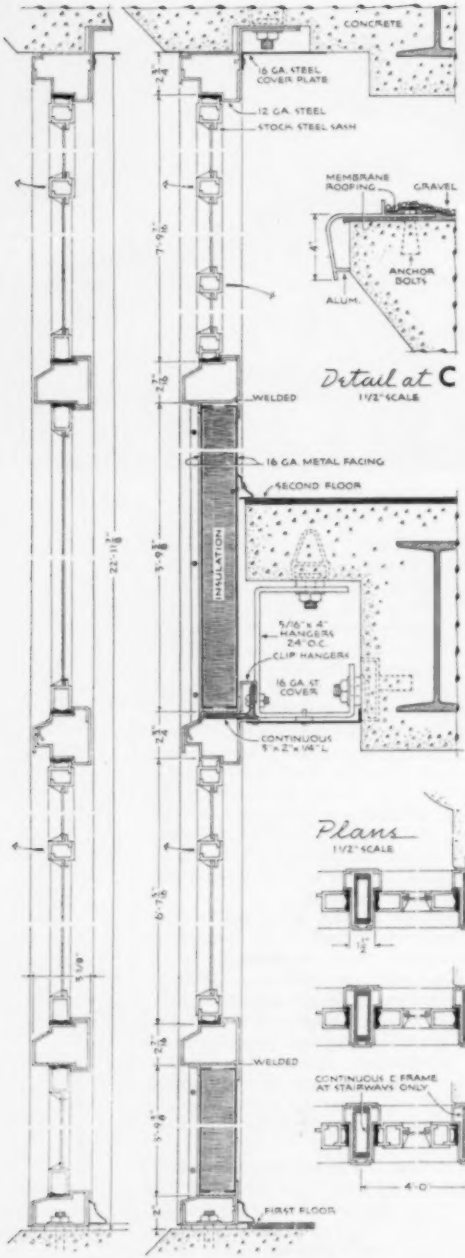
Plans

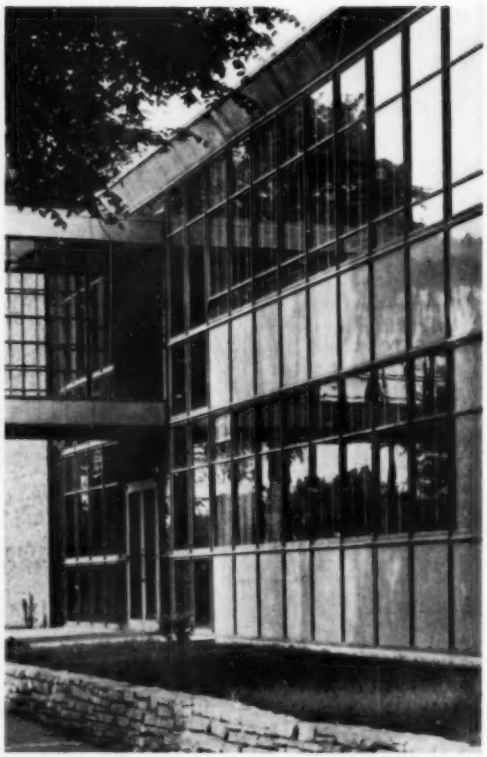
The two buildings are at right angles to each other and are connected by an enclosed footbridge at the top-floor level. Throughout the design, a prime consideration was efficient keying of the service distribution system for laboratories with both plan and structure (see page 85). Main organization of departments in the three-story Science Building follows exactly from the analysis of the problem—with the Physics Department on the ground or basement floor (to cope with the vibration problem); Physical Science and main Biology Labs (those that carry the heaviest "student load") on the first floor, and the Chemistry Department on the top floor, where the problem of drawing off fumes is minimized. In the two-story Pharmacy Building are four large laboratories—two on each floor—and attendant classrooms and faculty offices. A lecture hall occurs at the north end of the first floor of the building.

The two auditoriums at the west end of the Science Building are interlocked in an arresting plan form that developed from extended study of ways of grouping the halls in a single mass so as to keep cubage to a minimum. Another factor in their location was the wish to place rooms with the most traffic where they could be emptied expeditiously, using minimum circulation space. Preparation rooms where demonstration set-ups are organized before lecture periods and rolled out onto the platforms, have their separate access at ground-floor level.

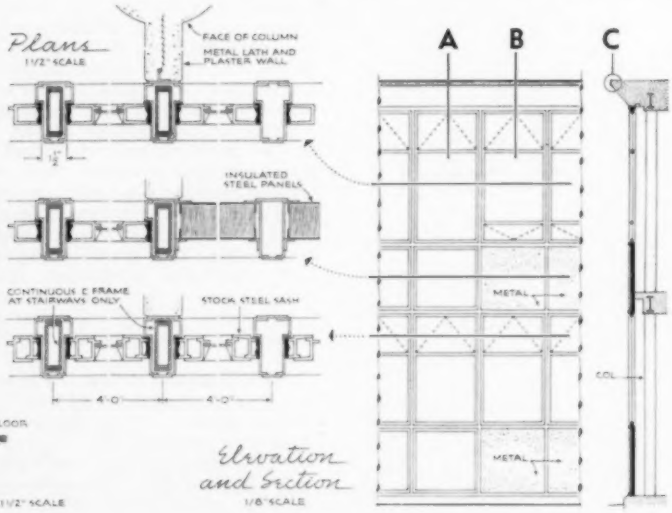
Eero Saarinen at first felt that a particular and distinct sort of space would have to be developed for faculty offices. But as the problem was studied further it appeared that the typical bays provided for labs and classrooms would also serve for office space. General office space occurs along the corridor partition, and screened cubicles are provided along other walls for individual faculty members.

SCIENCE AND PHARMACY BUILDINGS: DRAKE UNIVERSITY





PHOTOGRAPHY INC.



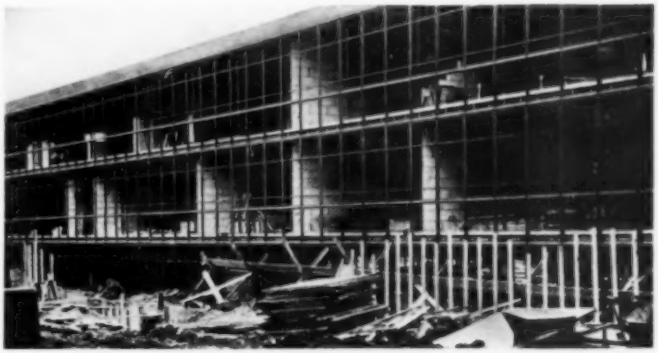
DRAKE UNIVERSITY SCIENCE BUILDING
Des Moines, Iowa

SAARINEN, SWANSON & SAARINEN, ARCHITECTS
BROOKS-BORG, ASSOCIATE ARCHITECTS

MATERIALS AND METHODS

CONSTRUCTION: Foundation: precast concrete piling and spread footings. **Frame:** exterior columns, steel pipe; interior columns, reinforced concrete. **Walls:** brick masonry; steel grid with glass and prefab spandrels. **Interior walls:** brick, terra cotta, structural tile, plaster, and plywood. **Floors:** reinforced concrete slabs and joists with block fillers; monolithic finish, metallic aggregate in laboratory floors and colored dye in lecture room floors. **Roof:** pitch and gravel over reinforced concrete slabs and joists with block fillers. **Waterproofing:** two coats of bituminous paint below grade. **Insulation:** acoustical—mineral acoustical tile in corridors; acoustical plaster in lecture room ceilings; thermal—synthetic rubber hardboard core and glass fibers in prefab exterior spandrels; vermiculite fill on roof. **Partitions:** plaster on gypsum block; steel, flush. **Fenestration:** architectural projected steel sash; glass, double strength, quality A. **Doors:** entrance, aluminum and steel; interior, wood slab, hollow core. **Paint:** automobile type on exterior wall spandrels.

EQUIPMENT: Heating and ventilating: circulating hot water system; fin-tube radiation; vacuum and air pumps, two boilers. Automatic temperature control. Special-shaped ventilators on roof over lecture rooms. **Electrical:** slimline and commercial type fluorescent lighting; down and flood lighting in lecture rooms; direct current generating plant; standard panel boards. **Plumbing:** wrought iron piping; corrosion resistant cast iron piping; lead lined piping and glass-lined tanks for distilled water.



SCIENCE AND PHARMACY BUILDINGS: DRAKE UNIVERSITY

Top construction view shows south façade of Science Building. Formwork for splayed soffit is being erected. Note horizontal heating distribution in front of exterior spandrel beams. Center photo shows exterior metal grid before glass and prefab panels have been placed. Gypsum block walls are partially erected. In bottom view, light gray glazed tile walls mark a corridor.

SCIENCE AND PHARMACY BUILDINGS: DRAKE UNIVERSITY

Above: general view of large auditorium. Apparatus room for prior preparation of demonstrations is located at left of lecturer's table and behind plywood surfaced brick wall.

Left: all-welded steel trusses supporting roof over auditoriums or lecture halls are approximately 50' long, 4' deep. Lateral bracing occurs every 12'.

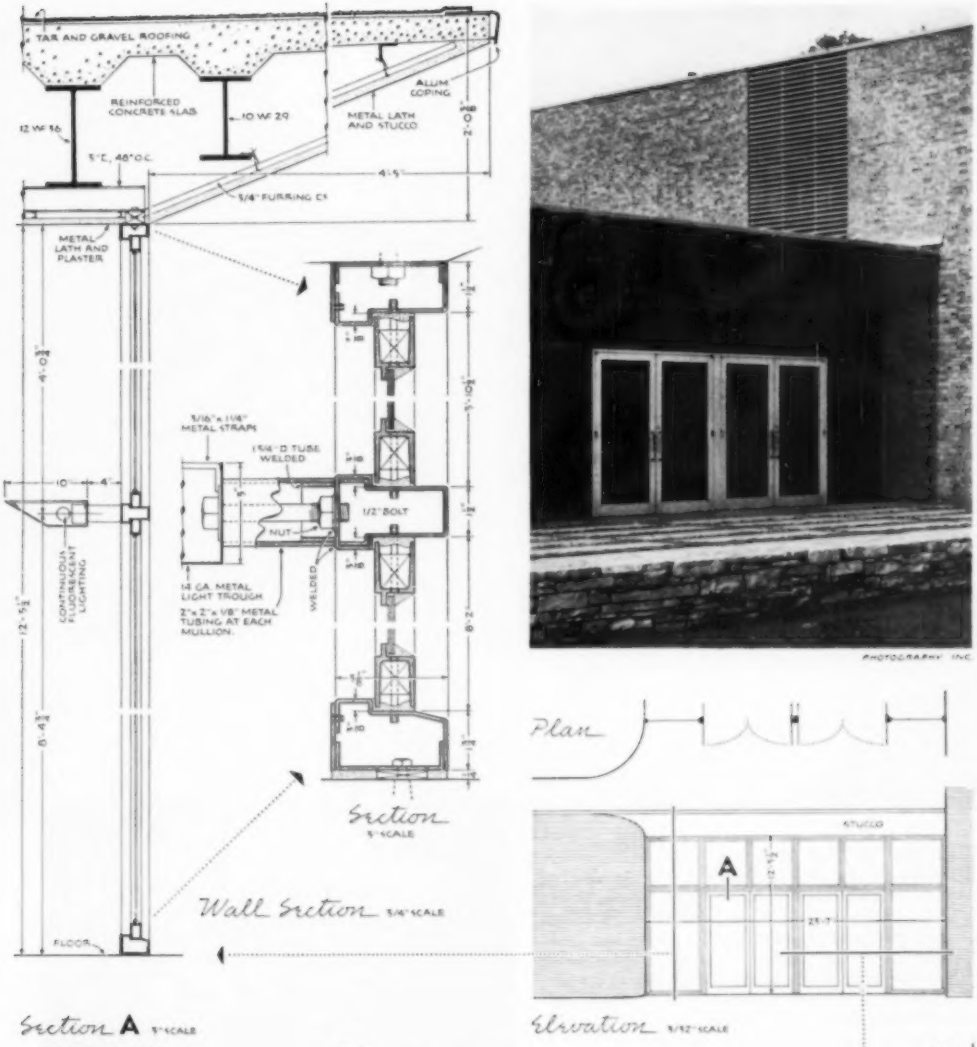
Engineering Analysis

The entire structure of these buildings was conceived by Eero Saarinen; associated architects, engineers, and other advisors assisted in the development of the original scheme. At an early conference between Saarinen, Swanson & Saarinen and Brooks-Borg, the general pattern of both the structural and mechanical features was agreed upon.

This architecture contains not one but several construction systems: structural steel with both riveted and welded connections, reinforced concrete, and load-bearing masonry. The principal structural concept embodies the use of light-steel pipe columns for the exterior walls and concrete columns at both sides of the corridor. A semi-cantilever design permits the use of 4"-diameter steel columns, which are fireproofed with a 1½"-thick vermiculite plaster finished with a putty coat. Those responsible for the structural engineering found no great disadvantage in the mixture of steel and concrete framing and are confident that the visual effect has justified the choice.

The typical floor construction consists of concrete joists between filler blocks made of concrete. Also, there are beam slabs in combination with the concrete joists with 4' wide coffers at alternate modules to accommodate lighting and piping. Both joists and blocks remain exposed and are painted with alkyd-resin emulsion. The floor slab, troweled to a monolithic finish, is colored with a dusted pigment applied at the time of finishing. Over the roof slab a lightweight concrete fill supports pitch and gravel roofing material. Corridor, classroom, and office floors are surfaced with asphalt tile. There are five interior wall materials: brick of a gray-pink color, dull blue terra cotta, gray ceramic glazed structural tile, plaster painted a light gray, and natural-finish plywood.

Mullions and horizontal members of the exterior glass walls are fabricated of heavy-gage steel; sup-



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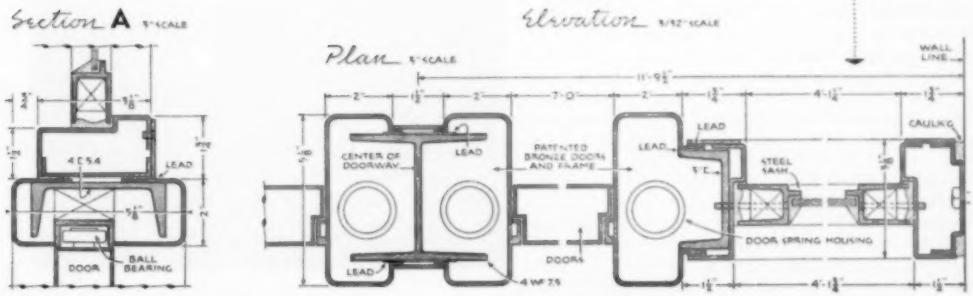


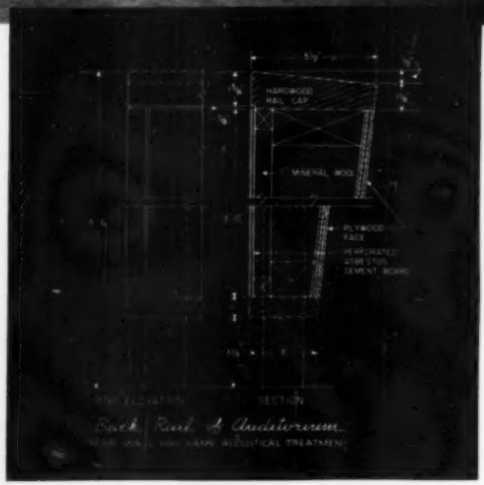
DRAKE UNIVERSITY SCIENCE BUILDING
Des Moines, Iowa

SAARINEN, SWANSON & SAARINEN, ARCHITECTS
BROOKS-BORG, ASSOCIATE ARCHITECTS

porting standard steel sash and prefab spandrels. An insulating core of synthetic rubber hardboard contains 2" of glass fibers within these panels. Outer skins are furniture-stock steel, bonded to the core frame with glue and cured under both heat and pressure in a roller press. Joseph N. Lacy, a member of the Saarinen firm, collaborated with the Chrysler Corporation to develop this spandrel. For subsequent use, the stability of this panel has been improved by bonding the skins to paper honeycomb cores; an "oil-canning" tendency has been overcome. As the grid and sash were shipped to the site in units one module wide and one complete story in height, the erection problem was greatly simplified. The spandrels arrived completely prefabricated and with baked-on finish.

Where masonry walls exist, light pink, smooth shale brick has been employed.

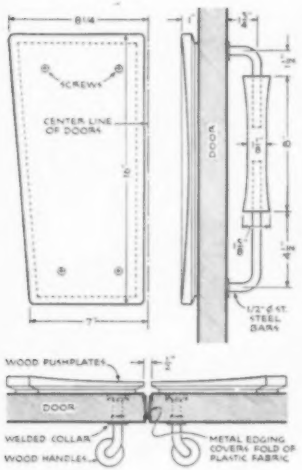
Because the entire Science Building is located over an old ravine, the soil conditions provide unsatisfactory bearing for spread footings. It was therefore necessary to use pile footings under the areas occupied by the Science Building and the auditoriums or lecture halls. Precast concrete piles were driven in clusters and around them pile caps were



SCIENCE AND PHARMACY BUILDINGS: DRAKE UNIVERSITY

Doorhandles-Pushplates

1 1/2" SCALE



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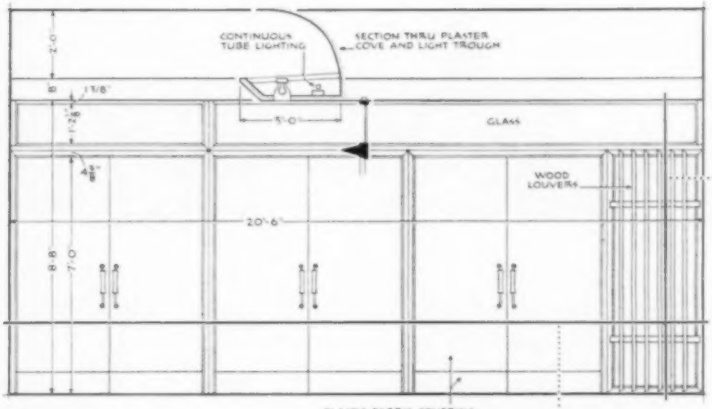
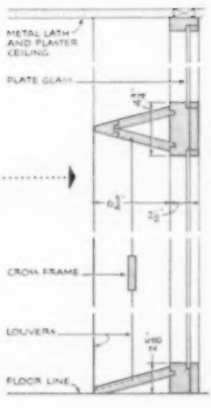


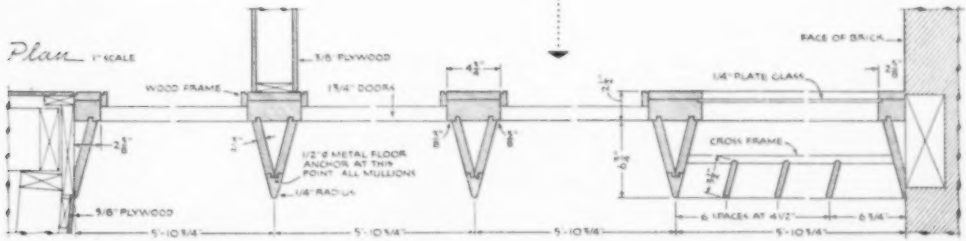
Elevation 1/4" SCALE



Section

1" SCALE

Plan 1" SCALE



DRAKE UNIVERSITY SCIENCE BUILDING
Des Moines, Iowa

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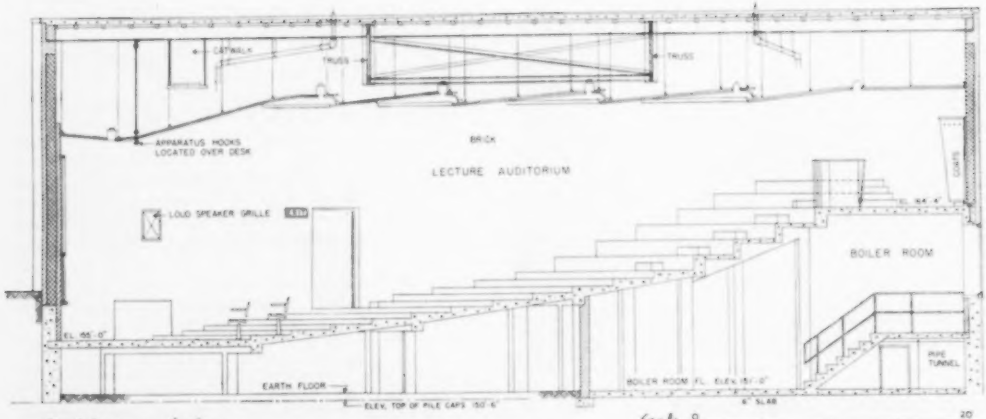
BROOKS-BORG, ASSOCIATE ARCHITECTS



Auditorium Section

formed; foundation beams extend between the caps. Spread footings are satisfactorily employed under the entire area of the Pharmacy Building.

The lighting in the classrooms, laboratories, and offices is of conventional fluorescent type. Heating is by forced-flow hot water, using gas for the boiler with oil stand-by. Most areas are heated by two lines of exposed continuous fin-tube radiation; however, hot-water radiant heating is used in the passageway connecting the two buildings. In the judgment of the architects and the mechanical engineers, it was not practical to use only floor-type radiant heating for rooms with such large expanses of glass; further, the nature of the selected type of ceiling construction precluded installation of radiant heating there.

Lecture Halls

Both lecture halls or auditoriums are suitable for many different activities. They are used by science classes for five hours a day and by seminars and other group conferences from about five to ten hours a week. In addition, movies, faculty meetings, and meetings of student groups are held there regularly.

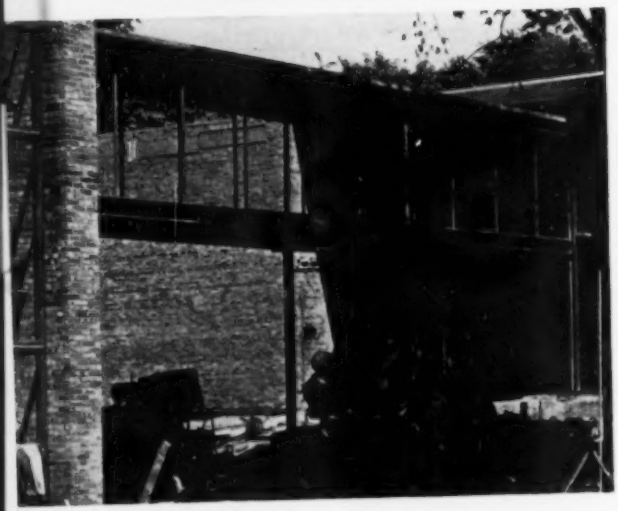
The planning problem was a relatively special one. The shapes were determined after many attempts to arrange the two rooms as a single block utilizing one group of preparation facilities for both rooms. Two-story lecture halls provided the solution; on the ground or basement level, apparatus rooms are found near the entrances to each of the demonstration tables. Also at ground level, and under the rear sections of the lecture rooms, a photo lab with yellow-light room and dark room, an alcohol storage room, a receiving room, and a boiler room are provided.

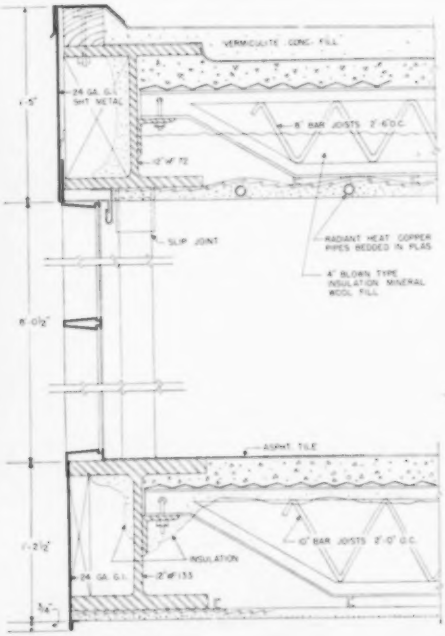
Principles of good sight lines, acoustics, and lighting were positive influences upon the resultant shapes of these rooms. They fit into a rectangle whose approximate dimensions are 70′ x 113′. The major roof supports are four 4′-4″ trusses connected to structural steel columns. Light steel beams between trusses and between enclosing masonry walls and trusses support a lightweight concrete slab covered with pitch and gravel roofing. Six 27″ diameter ventilators are located on the roof; in the truss space a catwalk serves as access to dampers and fan motors suspended from the roof purlins. In the large lecture hall, a hung ceiling consists of five panels; the rear four are treated with acoustical plaster while the front panel is of conventional hard plaster. In the smaller lecture hall, the three rear panels are treated with acoustical plaster while again the front panel is hard plaster.

To the sloping rear wall, and to the face of the rear railing, 3/16″ thick perforated asbestos cement board has been applied over a 1″ thickness of mineral wool. Paul E. Sabine, who made the recommendations for the acoustical treatment, computed the reverberation times to be as follows:

	Audience	Reverberation
Large lecture room	None	1.74 secs
	100	1.37 "
	350	0.90 "
Small lecture room	None	1.40 "
	75	1.01 "
	150	0.80 "

For the intended use of these rooms, the reverberation periods are considered quite satisfactory.




VERMICULITE CONC. FILL
24 GA. G.I. SHT METAL
8" BAR JOISTS 2'-6" O.C.
SLIP JOINT
RADIANT HEAT COPPER PIPES BEDDED IN PLAS
4" BLOWN TYPE INSULATION MINERAL WOOL FILL
ASPHT. TILE
12" BAR JOISTS 2'-0" O.C.
INSULATION
24 GA. G.I.

Bridge Section

SCIENCE AND PHARMACY BUILDINGS: DRAKE UNIVERSITY

Photo at left, acrosspage, and photo below were taken from top floor corridor of Pharmacy Building looking west toward Science Building.

The ceilings have general illumination from fluorescent tubes concealed in coves; in addition, incandescent down-lights on dimmers furnish illumination for the arm chairs. Stanley McCandless was advisor on the general lighting problems and thoroughly checked the architects' lighting design.

The interior wall surface at front and one side of each auditorium is of South Chicago common brick. The surface on the other side wall of each room is rift-grain oak. Floors are cement finish throughout with rubber mat runners in the aisles. Arm chairs with molded plywood backs are cherry red in color. A combination projection screen and blackboard has been placed on the front wall of each lecture hall.

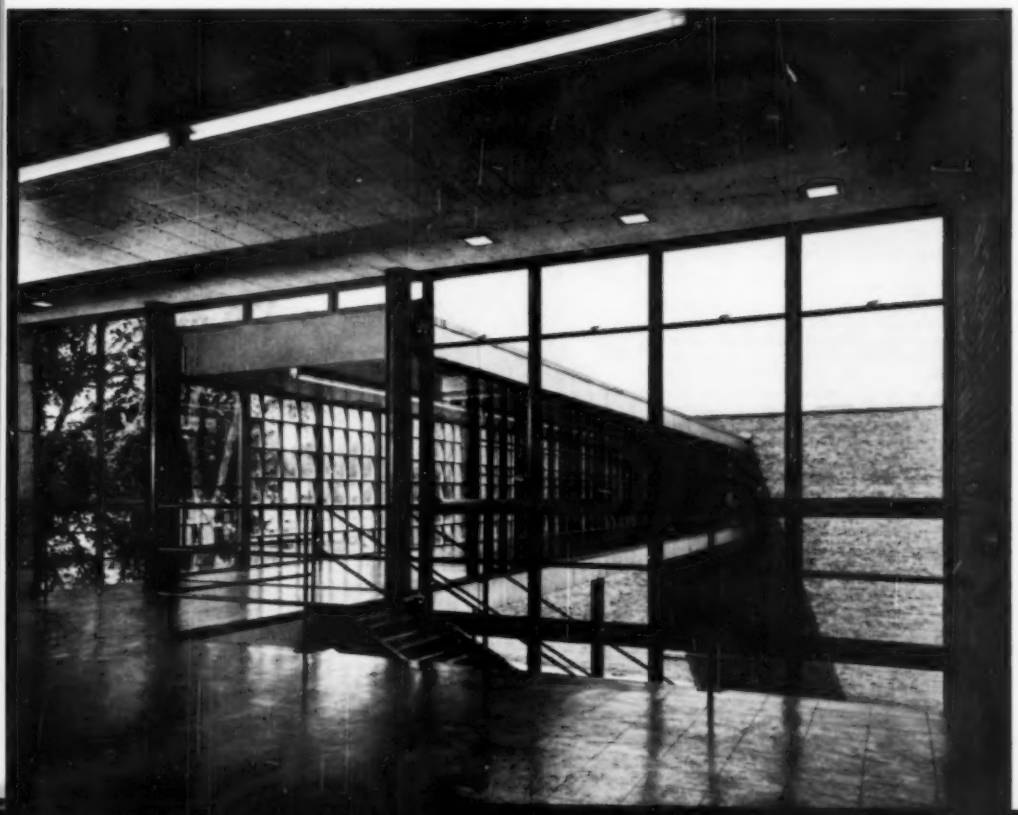
Liaison

In the original program, the need was expressed for the two buildings, although separate entities, to be unified in function, so that the facilities of the Science Hall could readily be used by the pharmacy students. In planning this integrated function, the architects again exhibited their design skill. The overpass bridge not only connects the top floors of the two buildings but also gives the occupants a feeling that while the two structures are separate, they are unified.

Made up of two spans of 53′ and 21′, respectively, the total length of the bridge is 74′. The structural system employs excessively heavy H-beams for the span. (Detail overpage.) Deflection is minimized by the increased weight of the sections; at floor level, 12 WF 133 beams extend the entire 74′ without splices. The long horizontal span was given a 2″ camber, assuming that a slight bow would remain after it had been loaded, to prevent the optical illusion of a sag. The intermediate supporting members beneath the bridge are standard 8″-pipe columns.

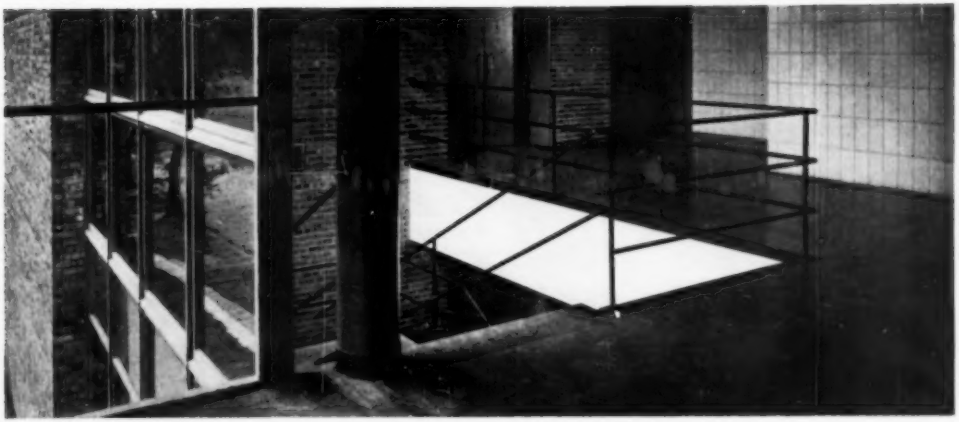
At roof level, 8″-bar joists located 2′-6″ on center support a 2½″-slab and vermiculite concrete fill; 10″-bar joists 2′-0″ on center support a structural floor slab surfaced with asphalt tile. Roof girders are supported by standard 2½″-pipe columns spaced on a 5′-4″ module at both sides of the passageway. The exterior wall is composed of heavy-gage steel grids containing individual glass panes 16″ square.

Although cold cathode lighting was originally specified for the overpass ceiling, standard 8′ slimline units were actually adopted. Radiant heating for this area is provided by hot water circulating through copper pipes embedded in the plaster ceiling.



The photograph above shows the connecting link between the two buildings, with the stair (see details, opposite page) returning to the first-floor level. The door which seems curiously placed 5 feet above grade in the east end of the Science Building (seen through the window wall; photo above) conforms to a future plan for closing the intermediate street, at which time the area between the buildings will be filled in, and a walkway sheltered by the bridge will connect the two units at that level. Progress photo, at right, was taken from the southeast corner of the Science Building. A small service basement, consisting of storage rooms and a fan room, occupies about 24 feet under the south end of the Pharmacy Building. Otherwise, there is no sub-grade usable space in the building, except for a pipe tunnel leading from the basement to tie in with the under-street pipe tunnel from the Science Building.

SCIENCE AND PHARMACY BUILDINGS: DRAKE UNIVERSITY



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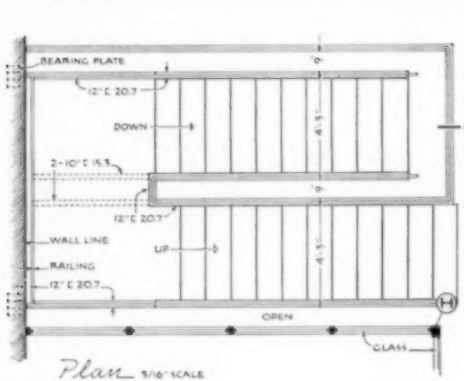

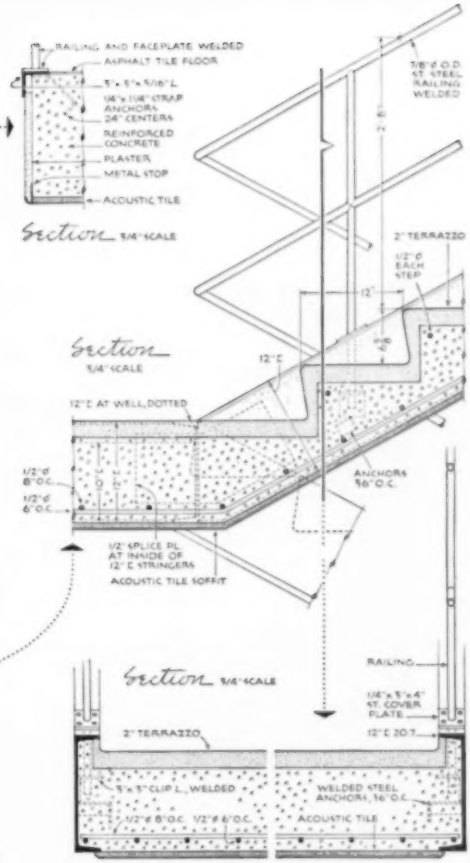

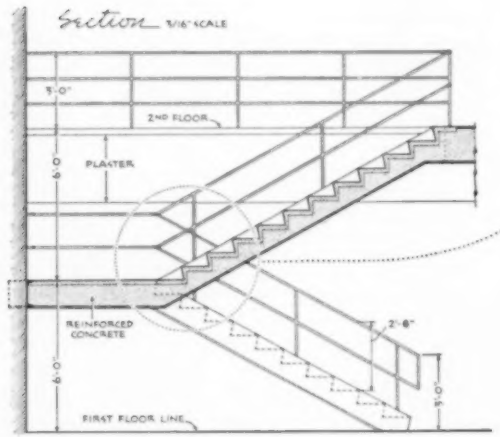

DRAKE UNIVERSITY SCIENCE BUILDING
Des Moines, Iowa

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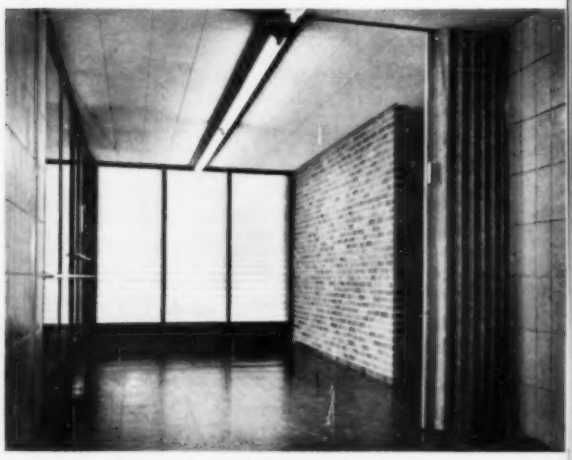
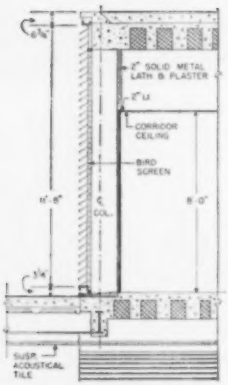
BROOKS-BORG, ASSOCIATE ARCHITECTS

'SCIENCE AND PHARMACY BUILDINGS: DRAKE UNIVERSITY

Left: Science Building corridor (ceramic tile walls; asphalt tile floor; acoustic ceiling; fluorescent lamps) looking down and across the bridge to the Pharmacy Building.

Below: the west end of the corridor, with glazed panel (the two end sections hinged), with bird screening and an over-all louver outside (see detail). This unit provides light without brightness contrast and keeps out western sunlight. The folding partition (right) fits back into a wall pocket.





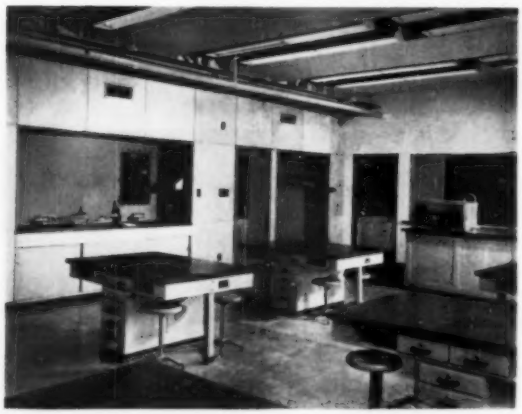
Section: WEST END OF CORRIDOR ABOVE LOBBY ROOF

Science Building

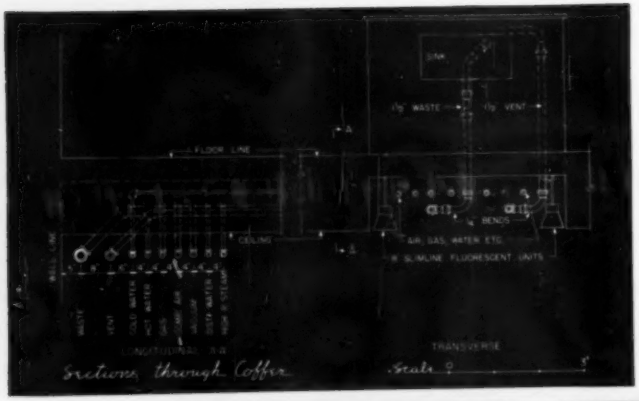
In the Science Building, an 11-foot-wide corridor runs down the center of each floor. At either side are laboratories, stock rooms, service rooms, and (in the southeast corner of the building) faculty offices. Lab tables on the first and top floors (biological and physical-science labs on the first floor; chemistry labs on the top floor) are located at right angles to the window walls. These tables are serviced from distribution mains (detailed on page 84) that come up through the floor from ceiling coffers of the rooms below.

Supply source of this maze of piping is the boiler room of the building, from which mains extend out to corridor walls, turn at right angles and travel along just under ceilings of rooms on either side of the corridor and, hence, into ceiling coffers beneath the laboratories they serve. These supply pipes, left exposed for easy accessibility, are painted different colors to distinguish the particular gas, liquid, or power line that each carries. Partition walls on the corridor sides of the labs contain fume hoods, sinks, and storage spaces, and (in each room) open-front "coat parking" cases, equipped with hanger rod and hat shelf. Stock rooms occur between each pair of labs. Corridor walls are surfaced with easy-to-clean glazed ceramic tile; ceilings are acoustically treated. Lab floors are concrete, with metallic hardener surface, and corridor flooring is asphalt tile. The general color scheme consists of a neutral background —gray floors; walls of white plaster, light oak, gray glazed tile, or brick; white ceilings—with strong color accents in the doors to the rooms, which are painted red, blue, or green.

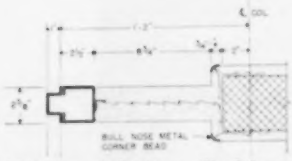
Right: a stock room along the north wall of the Science Building; typical sash has small operable panel at the bottom, and a larger one at the top; metallic hardened concrete floors simplify maintenance.



Left: biology-science lab on the north wall of the first floor; sink recess, storage cabinets; entrance door and the "coat parking" cabinet along corridor wall are typical. Note service mains running along ceiling and branching out into coffers to serve the general chemistry lab on the top floor (photo below). All cabinet work, work tables, and desks were architect-designed.



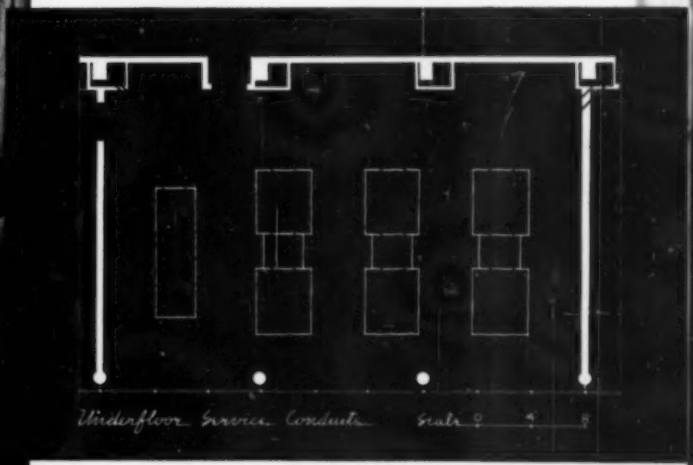
Typical Sash Mullion at Partitions



Mullion at Partition - Not Column

Typical Details

On these two pages are shown a number of details typical of the design concept throughout. The photograph is of a south-facing physical science laboratory on the first floor of the Science Building. Light and sun are controlled by Venetian blinds and draw curtains. Above the photograph is a diagram of the typical service distribution main showing how it travels out in a ceiling coffer to reach the lab desks of the floor above; the diagram on this page indicates the pattern of the typical service conduit system, and at far left, acrosspage, the method of connecting partitions with the exterior window wall is detailed in two typical conditions. Four-foot-wide ceiling coffer troughs occur eight feet on centers. Alternating panels (between joists) are filled with lightweight aggregate concrete units, left exposed and painted.



Above: office of the dean of the Pharmacy Department, complete with its own small laboratory. *Photo: Hahn Millard*

Right: one of the two classrooms at the north end of the second floor of the Pharmacy Building—asphalt tile floors; acoustical tile ceiling; exposed fin-tube radiation, underneath the band of windows.

Pharmacy Building

Within the Fitch Hall of Pharmacy, the detailing, use of materials, and basic design approach follow closely the pattern of the Science Building. On the first floor are laboratories for pharmaceutical chemistry and physiology-pharmacology. The former is used for biochemistry, pharmaceutical preparations, inorganic pharmaceutical chemicals, and cosmetics. Preparation, animal, and stock rooms occur between labs. There is also a room set aside for seminars, and a large lecture hall (photo at bottom acrosspage) at the north end of the floor. The second floor contains bacteriology-pharmacognosy and prescription laboratories, classrooms, faculty offices, and various service rooms. Student laboratories are equipped with water, gas, compressed air, vacuum and electrical outlets, brought to the building through the sub-grade pipe tunnel from the Science Building. Huge window areas flood the rooms with natural daylighting, and artificial light is provided by fluorescent units in the ceilings.

Special work desks in the prescription laboratory on the second floor (photo in color acrosspage) were designed by the architects so that each student has at hand his own set of drugs and equipment.

Like the Science Building, the Pharmacy Building follows the color scheme of rather neutral main surfaces, punctuated by strong color in small areas. Walls are of brick or plaster; woodwork is light oak; white acoustic tile is used on ceilings; doors to the rooms are painted different rich colors.

Right: corridor detail, outside the Prescription Laboratory on the second floor; ventilation grill in soffit at reveal; 5" x 12" ceramic glaze tile for corridor wall surfacing.

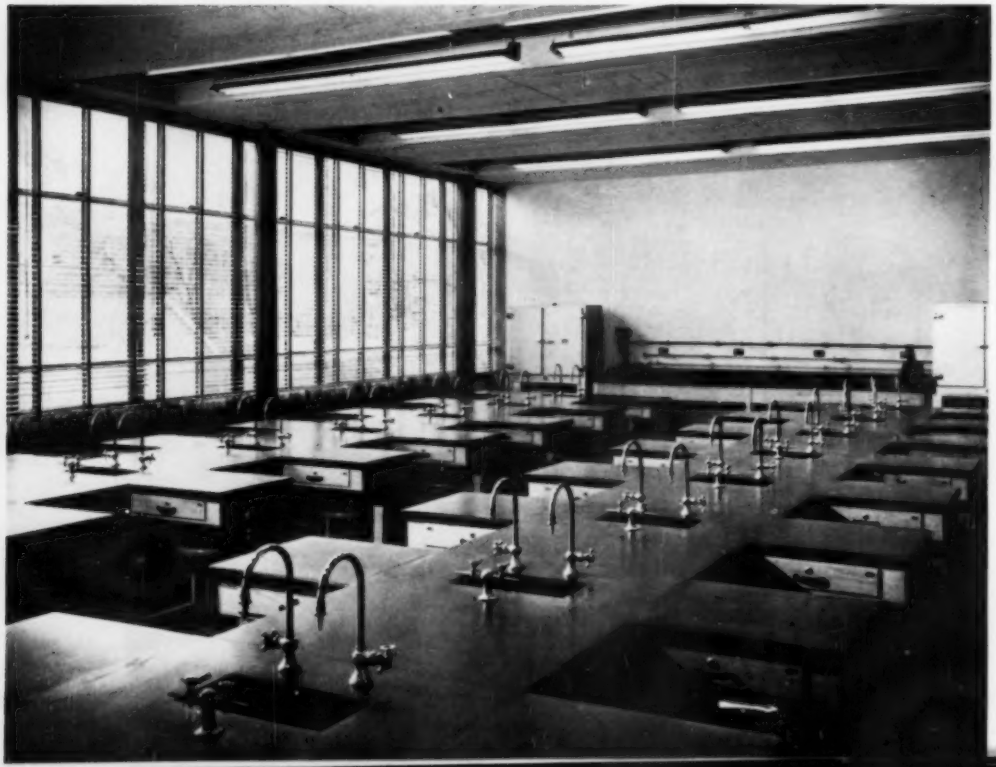
Left: detail of one of the architect-designed prescription desks in the second-floor lab arranged so that each student can keep his set of drugs and equipment independent of others.

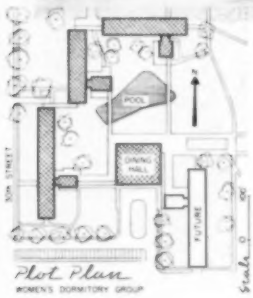
Below: Pharmacy Building lecture hall.

A planning refinement in the Pharmacy Building was inclusion in the corridors of individual student coat lockers. As pointed out earlier, pharmacy students usually spend the better part of the day in this building; hence (in addition to the "coat parking cupboards" in the Science Building) ventilated lockers are mounted in series along the east wall of the corridors, within a simple wood frame, raised 1'-5½" off the floor, for easy floor cleaning. The partition between the corridor and the offices (toward the west) consists of plywood panels on a wood frame, surmounted (above door height) by daylight-borrowing glass panels. Window walls of laboratories face east; those of the offices face west; and classrooms and lecture hall face north. Venetian blinds control the light on the east- and west-facing walls; draw curtains are used on north windows.

Left: second-floor corridor in the Pharmacy Building, showing the plywood and glass office partition (left) and the student lockers lining the wall opposite. Doors at far end open into a classroom. Slimline lamps on the ceiling provide artificial lighting.

Below: the pharmacognosy-bacteriology clinical laboratory, on the second floor. As in the Science Building, lighting elements (and, on the first floor, service-distribution lines) are set in ceiling recesses between the concrete ceiling joists.





Left: portion of master plan showing the scheme for dormitories to be built in the northwest corner of the campus, and a sketch of one of the buildings, seen across a free-form pool.

Below: study of student living room, to be built as a projection from the main building block.

Photos: Courtesy, Drake University Alumni Office

Future Program

As pointed out in the introductory pages of this study, the Science and Pharmacy Buildings are but the first units in a long-range plan from which will grow, in time, a magnificent new campus planned by the same architects. Drake is so sold on its first buildings that Saarinen, Saarinen & Associates have been retained to plan the scheduled future buildings as well.

Currently, a campaign to raise $1,500,000 for construction of three women's dormitories and a central dining hall is under way. The detail of the campus plan and the renderings that appear at the top of this page indicate the dormitory group, to be built in the northwest area of the campus property, just west of the Science and Pharmacy Buildings. Test borings and preliminary work have already been completed. Also scheduled for construction are a Hall of Journalism, a gift of Mrs. E. T. Meredith, widow of the late head of the Meredith Publishing Co., a Bible College building and chapel, and dormitories for men.

It is always a pleasure to report the final fillip of successful architecture — that the clients are pleased. And this is certainly so in the case of the Science and Pharmacy Buildings. Robert L. Stuhr, Director of the Office of Public Relations for Drake University, sends us enthusiastic reports from those who use the buildings. Commenting on reactions to the over-all design and the linking of the two distinct, but related units, Stuhr writes: "I think you would be interested in the reaction of the head of our Biology Department: 'It was in the planning of the unified function that the architects showed their particular skill in functional design. The buildings were connected by an overpass that allows free access; but the unification is more than this. One has a feeling that, while the two buildings are separate, they definitely are a unit—that one is the adjunct of the other, but neither is something that has just been tacked on. The subtleties of this functional unification are difficult to describe and were achieved through the concept of the architect.'"

The editors find it rewarding to present so distinguished an architectural achievement.

p/a materials and methods

Air Conditioning Sound Control

By F. HOMERKAMP*

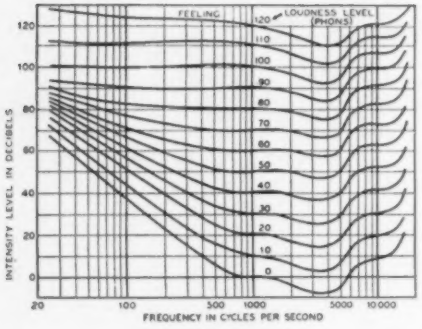


Figure 1.

Figure 2.

TYPICAL LOUDNESS LEVELS IN DECIBELS AND ABSORBING POWERS IN SABINES FOR VARIOUS ENCLOSURES AT NORMAL OCCUPANCY AND USAGE

	DECIBELS	SABINES
Radio Broadcasting Studios	20 — 35	1000 — 2000
Theatres, Legitimate	35 — 40	10000 — 18000
Theatres, Motion Picture, 1st Class	35 — 45	8000 — 18000
Theatres, Motion Picture, 2nd Class	40 — 50	2000 — 10000
Residence Bedroom	25 — 35	200 — 500
Auditoriums, Concert Halls, etc.	35 — 45	10000 — 18000
Churches	35 — 40	2000 — 15000
Funeral Parlors	30 — 35	800 — 2000
Private Offices, Acoustically Treated	33 — 40	800 — 1500
Private Offices, Acoustically Untreated	45 — 55	200 — 6000
Class Rooms	35 — 45	800 — 2000
Hospitals	40 — 55	500 — 1000
Libraries, Museums	38 — 45	1000 — 8000
General Offices	55 — 65	700 — 1500
Public Bldg., Court Houses, Post Offices, etc.	55 — 65	3000 — 10000
Ballrooms	60 — 75	2000 — 10000
Small Stores	50 — 65	700 — 1500
Dept. Stores, Upper Floors	50 — 60	1500 — 8000
Dept. Stores, Main Floor	60 — 70	1500 — 7000
Hotel Dining Rooms	50 — 80	1000 — 6000
Gymnasiums	60 — 75	1000 — 5000
Restaurants and Cafeterias	60 — 70	1000 — 6000
Banking Rooms	50 — 60	1100 — 8000
Office Machine Rooms	70 — 80	900 — 1500
Factories	70 — 100	1000 — 10000
Engine Rooms	90 — 120	1000 — 10000

Note: All loudness levels are based on a reference level of 10^{-16} watts per sq. cm. and will vary according to locality, loud speech, music, etc. These values have been found to exist during normal occupancy and usage of enclosures.

During the past few decades, important research has given new methods for control of acoustic conditions. This work raised architectural standards to the level of an exact science and today few buildings are erected wherein these basic principles are not applied.

Noise or sound is measured in two ways—for intensity and for loudness levels. Intensity is expressed in decibels and loudness is measured in phons.

Intensity of a sound wave depends upon both the amplitude and frequency of vibration. Sound intensity is defined as the rate of flow per unit area and is usually measured in watts per sq. cm. As shown in Figure 1, the human ear does not respond directly to the intensity of sound, but is stimulated by the sound, according to a law formulated by Weber-Fechner. According to this law the intensity of a sensation is proportional to the logarithm of the intensity of the external stimulus required to produce this sensation.

According to the Weber-Fechner law, a tone having an intensity of 1,000,000 times the intensity of a barely audible tone of the same pitch produces only double the amount of sensation produced by a tone having an intensity of 1000 times the intensity of a barely audible tone of the same pitch. The Weber-Fechner law is not quite exact, but it is common practice to use a logarithmic unit for describing and measuring sound intensities.

Usually, intensity of sound is rated in terms of minimal threshold intensity; that is to say, in reference to a sound that is just audible in an otherwise quiet space. This arbitrary starting point is now generally accepted as the sound having an intensity of 10^{-16} watts per sq. cm. of 1000 cycle pure reference tone. Figure 2 shows typical loudness levels in decibels and absorbing powers in sabines for various enclosures at normal occupancy and usage. The unit of absorption (sabine) is named after Professor Wallace C. Sabine, who performed much important work in connection with reverberation.

Figure 3 shows the results of hearing tests on half a million people. The lower curve labeled 95 indicates that 95 out of 100 persons in a typical group cannot hear pure tones whose frequency and intensity levels lie below that curve. The top curve indicates that 5 out of 100 persons cannot hear these tones until they exceed the intensity levels indicated by the curve. The middle curve indicates the levels where half the group can hear and the other half cannot hear. The dashed portions of the curve indicate regions where no measurements have been made. Feeling and hurting levels lie somewhere above 120 decibels as indicated by the field of dots at the top of the chart.

The area enclosed between the curve labeled 50 and the 120 decibels line is called the average auditory sensation area for the average listener. This area determines the range within which noise is audible and also the range within which wanted sounds must lie if they are to be heard. The curves of Figure 3 give the limits of hearing under quiet conditions. Any noise which is present in sufficient intensity and which lies above the threshold curve encroaches and limits the useful auditory sensation area. This is indicated in Figure 3 by the cross-hatched band. This curve gives the level of pure tones which can just be perceived in the presence of average room noise. The dashed curve gives the average. The average threshold of hearing in a room with average noise is therefore determined by the hearing mechanism from low frequencies to 200 cycles, by the room noise from 200 to 6000 cycles, and again by the hearing mechanism above 6000 cycles. In other words, due to the room noise, the useful auditory sensation area of the average listener is reduced by the area enclosed between the curve labeled 50 and the dashed curve.

Figure 4 shows the actual threshold of hearing in a typical residential room or motion picture theater having average noise. The shaded area covers 90 percent of noise conditions in these enclosures; that is to say, the lower limit curve may be anywhere in this area, depending upon the actual room noise conditions. For an average business office the lower curve will be raised about 15 decibels, and for a factory location the lower curve will be raised nearly 35 decibels, leaving a range of only 60 decibels, even if the highest

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levels that can be tolerated by the ear are used. Guided by the information in Figure 4, the acoustical engineer will try to reduce noise so that the useful auditory area is as large as possible.

In addition to creating comfortable indoor environment, air conditioning gives relief from street noise, an important consideration in noisy cities. If outside noise is excluded however, careful sound control of the air conditioning installation is necessary, otherwise the system may cause troublesome noise in the building.

In a central air-conditioning system noise may be generated by the equipment or by the air moving at high velocities through the ducts. Equipment noise will be transmitted to the conditioned space either through the building construction (as solid vibration from machine mountings or as air borne noise transmitted through room wall surfaces), or as air borne noise transmitted through the duct. In addition to the noise generated by the equipment and by the moving air, the duct may transmit air borne noise from without the building entering through fresh air intakes, and noise from adjoining rooms, principally cross-talk. A final source of noise in the enclosure may be in the air outlet.

The air-conditioning engineer has provided adequate sound control if his system operates without increasing the noise level of the conditioned space. His problem is solved, if he prevents any noise from entering the conditioned space, no matter where this noise originates.

Noise in air conditioning and refrigeration equipment is frequently caused by rotating parts of fans, motors, pumps, compressors, and other machinery, but may also be due to other sources. The problem of its elimination or reduction is similar to the problem of reducing machine noise in general, but there may be special problems involved, for example, the noise due to gas flow.

It is, of course, impossible to select equipment which will operate without producing some mechanical noise. Information concerning noise levels created by ventilating and air-conditioning equipment such as fans, motors, air washers, and similar equipment is not yet on a basis which permits tabular presentation, although some manufacturers offer such data. The noise from a fan, for example, is a complex mixture of sounds of various frequencies and intensities, and it is hardly possible to measure the total of the sound energy for an absolute noise rating. Therefore, it is customary to measure comparative intensities of the noise produced by the fan at some given point.

It is important to keep in mind that any statement of the noise rating of a fan without exact specifications of the points of measurement is meaningless and that no actual comparison can be made between different fans unless the testing conditions are exactly the same. This is nearly impossible for practical reasons and one fan manufacturer states therefore: "The best guide to the selection of a suitable quiet fan is still successful previous performance on a job similar to the one under consideration."

It is difficult, within the scope of this article, to deal with the special measures for the elimination or reduction of equipment noise and readers can find many other sources of such information. There is also much data available on various proposals for rating of apparatus noise.

In addition to the selection of equipment which operates relatively quietly, the proper location and insulation of the equipment room will prevent noises from being transmitted through the walls and the ceiling of the equipment room to other rooms. All vibrating or rotating equipment should be isolated in order to prevent vibrations from being communicated to the solid frame of the building. A few general remarks may be useful.

1. If reduction of noise at the source is possible or practical this step should, of course, be taken in order to solve the noise problem. However, it should be kept in mind that the quieting of motors, compressors, bearings, and similar equipment is frequently uneconomical, because the remedies for the noise may call for reduced tolerances or for additional manufacturing operations which increase the cost considerably. In some cases it is possible to reduce noise by

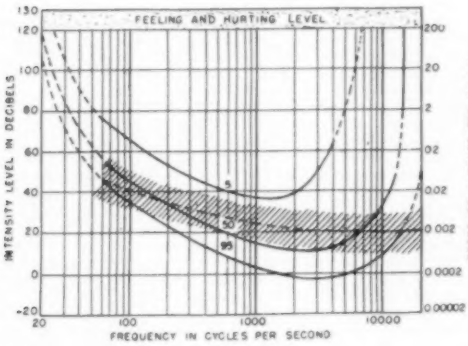

Figure 3.

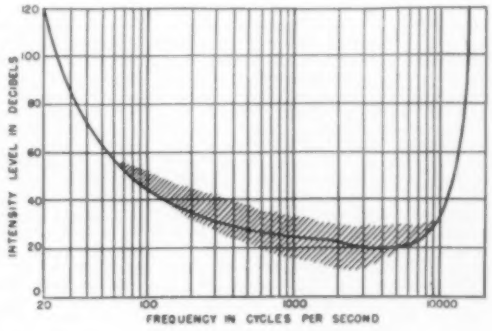

Figure 4.

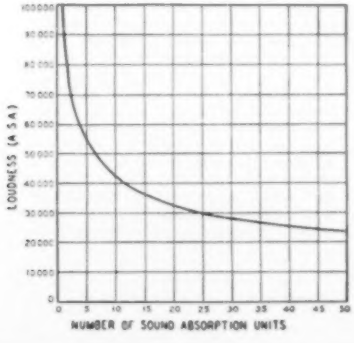

Figure 5.

MATERIAL	THICKNESS (Inches)	COEFFICIENTS OF SOUND ABSORPTION 128 CYCLES	512 CYCLES	2048 CYCLES
Absorbex A cemented to plaster board	1	0.18	0.63	0.77
Acoustex 60, spray painted	1	0.16	0.51	0.72
Acousti-Celotex, Single B	5/8	0.11	0.45	0.68
Acousti-Celotex, Triple B	1 1/4	0.20	0.75	0.67
Acousti-Celotex Cave Tile, Type C	1	0.37	0.69	0.77
Acousti-Celotex Mineral Tile, Type M	1	0.15	0.88	0.77
Acoustic Flexfelt	....	0.27	0.56	0.68
Acoustone	1	....	0.66	0.69
Air Acoustic Sheets	1/2	0.24	0.50	0.63
Air Acoustic Sheets	1	0.46	0.63	0.73
Akoustolith Plaster	1/2	0.21	0.29	0.37
Akoustolith A, Tile	1	0.14	0.48	0.83
Brick Wall, unpainted	18	0.024	0.031	0.049
Calicel	1	0.23	0.72	0.71
Corkoustic, Type C	1 1/2	0.08	0.61	0.64
Glass	....	0.035	0.027	0.020
Hair Felt	1	0.06	0.57	0.81
Insulite Acoustile, Type 44	1 3/8	0.26	0.50	0.61
Kalite, with 3 coats lacquer	3/4	0.35	0.43	0.45
Macoustic Plaster, stippled to depth of 1/2 inch	1/2	0.13	0.31	0.58
Masonite	7/16	0.18	0.32	0.33
Plaster, gypsum on hollow tile	....	0.013	0.020	0.040
Plaster, gypsum, scratch and brown coats on metal lath on wood studs	....	0.020	0.040	0.058
Plaster, lime, sand finish, on metal lath	3/4	0.038	0.060	0.043
Poured concrete, unpainted	....	0.010	0.016	0.023
Q-T Duct Liner	1	0.43	0.69	0.78
Rock Wool Blanket (MK)	1	0.29	0.83	0.72
Rock Wool Blanket (MK)	2	0.66	0.84	0.83
Rockoustile	1	0.18	0.57	0.72
Sabinite	1/2	....	0.34	0.49
Sanacoustic Tile	1 1/4	0.19	0.79	0.74
Stuccoustic Plaster, Type XB	3/4	0.29	0.59	0.72
Transite Tile	1	0.19	0.81	0.72
Trutone Tile	1 1/8	0.31	0.57	0.64
Wood Sheathing, pine	3/4	0.098	0.10	0.082
Wood, varnished	....	0.05	0.03	0.03

Figure 6.

changing the shape of a part, or its dimensions.

2. Sound transmission from the source to possible radiating surfaces, or in other words, the isolation of vibrations, can be prevented by flexible mounting of the machinery. Such mountings must be carefully designed so that they will actually reduce the amount of energy transmitted by the machinery and the supporting floor, because otherwise, under certain circumstances, conditions may become worse. For speeds up to 700 rpm the machine should be mounted on coil springs. For speeds of 700 to 1200 rpm rubber provides a satisfactory mounting material and for speeds higher than 1200 rpm isolation cork board has been used with good results. Materials which supposedly serve both the isolation and the dampening of sound should not be used. It might be added that proper balancing (both statically and dynamically) of all moving parts will go far to eliminate the vibration at the source.

3. For the dampening of vibrations, dampening materials should be applied to all surfaces which radiate sound. Dampening materials or sound deadeners, as they are frequently called, dampen out vibrations in solids, thus reducing the amount of sound radiated into the air. They have been developed for the automotive industry, but are also being used to advantage in air-conditioning equipment and other machinery. This material will be effective whenever the radiating surface is not too closely coupled to the source of vibration. Any condition of resonance offers prima facie evidence that dampening will be beneficial.

4. Air borne sounds should be absorbed with sound absorbing materials. In discussing sound production and reproduction in rooms, we find that the absorbing power of a room equals the sum of the areas of the various surfaces multiplied by their respective absorption coefficients. Sound absorbing materials are porous materials with high absorption coefficients and are now used practically everywhere for the sound conditioning of rooms in order to improve hearing conditions and to minimize the effects of noise.

Figure 5 shows how the noise made by a machine inside an enclosure decreases as the sound absorbing materials are added. The curve shows an extreme case, for the initial point on the curve represents the extremely small amount of absorption existing in an unlined, reinforced steel box. In practical cases sound absorption is already present in parts of the machine or in nearby surfaces and surroundings, so that conditions are already such that they are represented by a point well down on the flat portion of the curve, and so a large amount of absorption will be needed to make a noticeable decrease in noise. Such a condition exists in automobile bodies. In quieting offices, it is usually considered too expensive to attempt more than a 40 to 50 percent reduction in loudness. Figure 6 gives the sound absorption coefficients of some typical materials.

The transmission of noise through the duct work of the air-conditioning system to the conditioned space is an interesting problem. In order to know how much noise will be radiated into the conditioned space, it is necessary first to know how much sound energy enters the duct from the equipment end, and second, how much of this energy is dissipated as it travels through the duct system. There is little information available regarding the sound energy entering the ducts. Some authorities give a possible input level of 90 to 110 decibels, depending on the type, size, and speed of the equipment. These measurements were made on units with a capacity of from 5000 to 20,000 cfm and refer to the energy flux per unit area of outlet or inlet and therefore do not increase with increasing size as rapidly as would a total energy measurement.

There is more information available about the dissipation effects within the duct system. There are two kinds of dissipation effects—absorptive effects and reflective effects. As we are well aware, all materials have the property of trapping a portion of the noise energy received on the material face, and conveying it into the interior where it is converted into heat energy and dissipated. Even duct work made out of sheet metal has some ability to absorb noise. This is known as natural attenuation of ducts and depends on duct length, perimeter, and the section area.

Reflections of sound in duct systems occur at bends, elbows, splitters, and at any abrupt change in area. Such reflections affect, primarily, the low frequen-

cies; that is to say those below 500 cycles which are characteristic of the noise from fan and motor. Acoustic materials frequently have a high sound absorbing capacity at upper frequencies, but only a low absorbing capacity at lower frequencies (see Figure 6). If acoustical material is therefore used for lining a duct with several elbows, it is possible to filter out both high and low frequencies to the desired degree.

Attenuation values are given in Figure 7. In general the attenuation of sound in straight sheet metal ducts is so negligible that except for long runs it may be disregarded.

Much noise is transmitted by the duct if it is rigidly connected to the fan outlet. An elementary requirement is therefore a canvas sleeve between the fan outlet and the duct which effectively restricts noise at this point. It is also helpful to limit the tip speed of the fan and the outlet velocity, if this is possible. The most practical means of reducing sound transmission through the ducts is by the use of sound absorbent linings. Requirements for a good absorption material are: 1) high absorption at low frequencies, 2) adequate strength to avoid breakage, 3) fire resistance and compliance with national and local code requirements, 4) low moisture absorption, 5) freedom from attack by bacteria and algae, 6) low surface coefficient of friction, 7) particles should not fray off at higher design velocities, and 8) odor freedom.

Sound absorption coefficients for some acoustical materials which are used to line ducts in order to reduce noise are given in Figure 6. Formulae have been developed for performance of sound absorbent linings. This data indicates that it is desirable to use absorbing materials with high absorption coefficients, because the attenuation increases rapidly with an increasing absorption coefficient. A material having 75 percent absorption, for example, will produce three times as much attenuation per lineal foot as a material with 37½ percent absorption.

Here is the procedure for estimating sound reduction in ducts:

1. Determination of the acceptable room noise level.
2. Determination of noise level generated by the equipment.
3. Determination of the natural attenuation of the duct system.
4. Selection of the proper sound treatment for the duct system.

Noise is an important consideration in selecting an air outlet. After the heating or cooling calculations have been made, the supply temperature selected, and the required air volume determined, it is necessary to find the velocity at which air can be introduced into the enclosure without objectionable noise or objectionable drafts. The loudness level set up by an "aspirating"* air diffuser operating in most enclosures depends mainly upon the absorbing power of the enclosure, and before the sound created by the outlet can be determined, the absorbing power of the room has to be known.

In order to enable easy calculations of the loudness level of "aspirating" air diffusers, three sound charts have been developed, each indicating the sound levels generated in an enclosure when operating at various air velocities. Each chart contains a group of diffusers usually installed in rooms of a certain size. After the proper diffusers have been selected, and after the room absorbing power is found, the diffuser loudness level taken from the chart may be checked against the expected average noise level in the particular enclosure. Each of the selected air diffusers may be checked separately and the loudest one taken to be representative of the total loudness level caused by all units involved. The sound level of an "aspirating" air diffuser will not be objectionable if it is not greater than the average room level.

Although the air outlet is the final source in air-conditioning systems, other sources should be primarily considered since they play the most important part in the total sound energy delivered to the enclosure. For the reduction of noise in air-conditioning systems equipped with "aspirating" air diffusers, the following steps are recommended:

1. Spotting the origin of excessive noise. Remove outlet without stopping air supply. If noise disappears or is substantially decreased, the outlet is the source of excessive noise. If noise is still evident, other elements of the air-conditioning system or entirely different sources are at fault. High pitched, rushing noise indicates that the duct system or excessive velocities in the duct are the cause; low-pitched rumbling noise points to the mechanical equipment of the air-conditioning plant.

2. Outlet noise. Check whether correct amount of air is supplied and whether neck velocity is within acceptable limits. Rebalance if necessary. Check whether one-sided air flow through outlet causes excessive noise. Correct this condition by means of proper setting. Check whether outlet is properly installed or whether sharp edges or leakage are causing noise. The same applies to the installation and setting of the splitter damper. Eliminate leakage and cover sharp edges by such means as split rubber tubing. Eliminate rattling noise by tightening all loose connections.

3. Duct noise. Duct noise is caused by excessive velocity of air flow and its impingement upon improperly designed or installed elbows, take-offs, or badly made and set dampers. Check velocity in the duct and damper setting and correct them if necessary. If this does not eliminate the noise, the duct system must be checked for quality of construction, leaks, sharp edges, proper design of elbows, splitters, obstructions, etc. Unsatisfactory conditions must be corrected. When very high duct velocities are unavoidable, sound absorbing lining and sound traps must be provided.

4. Noise from equipment or other sources. Noise may also originate with the fan or refrigerating equipment or it may be caused elsewhere and then transmitted through the duct system. Such a situation should be investigated and steps taken to correct it.

*An aspirating diffuser is designed so that the passage of incoming air siphons a series of counter currents of room air back into the cones of the diffuser. Simultaneously, air expansion within a cone reduces incoming air velocity. In this way, supply air is premixed with about one-third of its volume of room air within the diffuser before the mixture is spread throughout the room in a draftless pattern.

NATURAL DUCT ATTENUATION

Attenuation in Straight Metal Duct Runs

Duct Size	Att/Ft (DB)
Small—6" x 6"	0.10
Medium—24" x 24"	0.05
Large—72" x 72"	0.01

Attenuation of Elbows

Elbow Size	Att per Elbow (DB)
Very small—2" wide	3
Small—3" to 15"	2
Medium—12" to 36"	1½
Large—36" and up	1

Attenuation at Duct Branches or Outlets

$$\text{Ratio} = \frac{\text{Branch Duct + Outlet Area}}{\text{Supply Duct Area}}$$

$$\text{or } \frac{\text{Sum of Branch Areas}}{\text{Supply Duct Area}}$$

	Att per Transformation (DB)
1	0
1.20	0.8
1.35	1.3
1.50	1.8
1.75	2.5
2.00	3.0

From ASHVE GUIDE—1948

Figure 7.

Interior Wall Materials for Residences, PART 3

By GROFF CONKLIN

plywood

There is no need to go into any detailed description of the plywoods, since every architect is familiar with their merits and qualities. On the plus side are plywood's beauty, particularly when the hardwood plywoods are used; its great strength and durability; and its low maintenance cost if the wood is left natural and not painted, but only waxed. Plywood also, due to the nature of the glues used to make it, is less susceptible to attack by insects and rodents than some of the other materials that have been described.

The minus aspects of plywood as a material for residential walls include the high price of the hardwood plywoods and the fact that the softwood plywoods, though less expensive, are not usually attractive enough for use undecorated. The striated fir plywoods are beautiful, of course, unpainted as well as painted, but their cost is higher than the plain. Most important performance defects of the plywoods in the home are their poor acoustical insulating qualities —only 24 to 25 decibel sound transmission loss—and the fact that they are combustible. Both of these factors can be somewhat minimized by applying an underlayer of $\frac{3}{8}$" gypsum lath or wallboard to the studs and ceiling joists, and placing $\frac{1}{4}$" plywood panels over the gypsum. This is an expensive technique, but it does raise the acoustical insulating efficiency of the wall to over 40 decibels and adds half an hour or more to the fire resistance of the wall.

solid wood panels

In general, solid wood paneling is outside the economic range of most prospective home owners except, perhaps, for the "knotty" pines, cedars, firs, and other softwoods, which sometimes are used for finishing basement rumpus rooms, upstairs studies or dens, or even highly informal living rooms. They are somewhat less stable than the plywoods, since they have no cross-grain layers at right angles to the surface grain, and are also more subject to attack by biological enemies of the house, since they contain no glues of the sort which, in plywood, offer some protection. The fire resistance rating of a $\frac{3}{4}$" tongue and groove board wall is only 20 minutes, obviously below the 45-minute standard. However, well dried and well installed softwood paneling can be very attractive in the home, and offers the same compensations of low maintenance and replacement costs that plywood does. Wood paneling can be protected against fire and given added acoustical insulating value the same way that plywood can, by adding gypsum lath as an underlayment against the studs and bottoms of the ceiling joists.

asbestos cement wallboard

The only commonly used nonwood wallboard beside gypsum is made from asbestos and cement, pressed into thin, rigid sheets of great surface hardness but considerable brittleness. Although one would expect that such a board would have a high fire rating, Bureau of Standards tests indicate that a partition faced on both sides with 3/16" cement asbestos board has an ultimate fire resistance period no greater than that of the insulating fiberboards, or 10 minutes. When placed over $\frac{3}{8}$" gypsum wallboard, however, the rating rises to one hour for the two materials in combination—much the same results as were posited for plywood underlayed with a similar thickness of gypsum board. It is true that the asbestos cement board is incombustible, but under extreme heat the material tends to disintegrate because of its brittleness, unless backed by the gypsum board.

The board is, of course, nonwarping, easy to clean, insect, rodent, and rot proof, and water resistant. These factors make it worthy of consideration in certain installations, though not commonly in living rooms or bedrooms. The material is available scored to imitate tiles, and also in special waxed finishes which are well adapted to use in bathrooms and kitchens.

single thickness dry walls

There are three general types of materials suitable for "single-thickness" walls in modern homes: brick or stone masonry or cinder or concrete blocks; special insulating glass or masonry units; and sandwich materials. None of these materials is exactly standard in residential construction, but all are, in certain climates and under certain conditions of construction, suitable for any kind of wall, interior as well as exterior.

Exposed masonry walls, both in all-masonry houses and in frame homes with large fireplaces, are becoming more and more common in homes designed along modern lines. Although excellent in every other respect—acoustical insulation, fire safety, decay and house pest proofness, and strength, these walls are, unless specially constructed, a source of considerable heat loss and dampness, since masonry is a poorer insulator than any other building material. In regions where heat loss in winter and dampness at any time are serious factors, masonry walls built in two vertical layers separated by an air space—the so-called "cavity wall"—are the best, though a very expensive solution for the heat loss problem, particularly when the cavity is filled with an incombustible insulation. The result is just about the most fool-proof wall that can be built. The problem of dampness will be minimized if not entirely dissipated by the use of the insulating material in the cavity space, especially if an impermeable waterproof membrane is applied to the outer surface of the inner layer of masonry.

Masonry partitions, used most often in homes where fire safety and resistance to fungus, insect, and rodent attack are considered important factors, may be built of brick or cinder block, unplastered if desired, or of gypsum blocks or structural clay tiles. The latter two usually are plastered, since the appearance of the rough blocks is not as pleasant as that of well-laid brick or cinder block. The thermal conductivity factors of these materials are very poor; however, that fact is of no importance when they are used as inner partitions, for they serve no function as barriers to cold. Their fire resistance ratings are well over the minimum

of 45 minutes, except that the four-inch clay tile *must* be plastered to meet that requirement.

When plastered, all of these materials in the four-inch thickness have sound transmission loss factors well within the safety range, though certain types of exceptionally lightweight blocks do test a few decibels below the standard of 40. It is advisable to select units that are as solid as possible, i.e., that have the smallest hollow cores and the greatest density of material, both for acoustical insulating efficiency and for fire safety. Unplastered, none of the materials mentioned, except brick, are effective from the acoustical insulating point of view.

Economically speaking, of course, most masonry partitions cannot compete with the standard stud, lath, and plaster wall, though some architects have found that four-inch cinder block partitions, unplastered, are cheaper.

Insulating masonry units are of two general types—a special cement or concrete, and glass block. Recently put on the market is an insulating concrete block called Durisol. It is made with chemically-treated wood chips and shavings mixed with a lightweight concrete aggregate. In the $3\frac{3}{8}$" thickness for exterior walls, it has a "U" factor of 0.20, which compares not too unfavorably with other materials. The blocks are incombustible, strong, dimensionally stable, decay and termite proof, and have good acoustical qualities. The inner face can be plastered if desired, or can be left unfinished in rough installations. Special studs are required between each vertical row of blocks, which may add considerably to the cost of a house built of this material.

Glass blocks, which under many circumstances are used only for decoration or in place of a window, nevertheless have fair performance qualities as a single-thick wall material. They are much better heat insulators than plain glass, having a "U" factor of approximately 0.40 in the smooth-faced types. This makes them unsuitable for general wall use if heat conservation in the winter is a factor, but quite effective where vision is not essential but light from outdoors is.

The sandwich materials mentioned above are known under the trade names of Cemesto and Kaylo Laminated Panel. Cemesto, made of up to $1\frac{1}{2}$" of Celotex as a core with asbestos cement laminated to both sides, is said to provide adequate thermal insulation for most uses, with a claimed "U" factor for the two-inch panel of 0.16. It is stated to be "fire retardant," though the actual fire test data presented in the manufacturer's literature cannot be compared with standard A.S.T.M. tests. However, the data presented are sufficient for justifying the assumption that Cemesto is not anywhere nearly as combustible as the Celotex which composes its core. The edges of the panels are sealed on the job to prevent moisture, decay, and termite attacks, with a paraffin which forms as impermeable coating. Cemesto cannot be plastered, and for this reason, as well as for its generally unconventional appearance, it may not ordinarily recommend itself for individual houses. However, when skillfully used it may result in considerable first and maintenance cost savings and can prove very attractive in certain types of specially-designed modern homes.

The Kaylo Laminated Panel is made from a calcium-silicate core which has fair insulating qualities and is incombustible. The claimed "U" factor for the $1\frac{7}{8}$" thick panel is 0.30, making it, on the record, considerably less efficient in this respect than the Cemesto board. However, its fireproofness, freedom from danger of attack by termites, rodents, and decay organisms, and dimensional stability make the material very acceptable for uses where high insulating values are not of paramount importance. The Kaylo panel costs somewhat more than Cemesto, at least at present while it is still not distributed through dealers but only direct from the manufacturer, but this situation may change in the future.

plaster

Traditional rough plaster is made from a mixture of lime or (more usually) gypsum, sand aggregate, water, and occasionally some kind of vegetable or animal fiber to give it cohesiveness, ordinarily in the first or "scratch" coat only. The brown coat is fiberless. The third, or white coat, is made of a very thin coat of lime putty mixed with plaster of paris and water, and serves only the purpose of ornament. A perfectly satisfactory wall surface can be achieved with scratch and brown coat alone, if the brown coat is carefully finished. The result will not be quite as smooth as a lime-finished wall, but it is still acceptable in many instances, and will mean a sizable saving.

Since plaster is a mineral substance, it is proof against decay and the attacks of termites and rodents, although rats will gnaw their way through plaster if they think the reward on the other side is large enough. As shown in Table 1, Part I of this review (see page 90, September 1950 **P/A**), an old-fashioned wood lath and plaster wall is stronger than all types of dry wall tested. On gypsum or insulation board lath, it probably is as strong, if not stronger, than on wood lath; however, to the author's knowledge the National Bureau of Standards has not released any tests on these types of wall, so the question cannot be specifically answered one way or another.

Acoustically, plaster usually increases the sound transmission loss of any wall, whether of wood lath, gypsum lath, or insulating lath, to a point well above the 40 decibel efficiency which the experts state is desirable in residential construction. Special types of lath installation may be necessary to achieve this efficiency, as pointed out earlier in this review, but even when merely nailed, the gypsum lath and plaster wall has a relatively high sound transmission loss factor.

More important than any other quality, in some ways, is the fact that a gypsum plaster wall in nearly

every instance has a fire resistance rating of better than 45-minutes, usually better than an hour. The only important exception is when it is used on insulating fiberboard, when the rating is only 35-minutes, according to the Bureau of Standards. (Another exception is when wood lath are used, in which case the rating is only 30-minutes. However, wood lath are so nearly obsolete as not to warrant consideration in this review.)

Against these positive qualities in favor of plaster are the following negative factors. Plaster adds tons of water to the structure, at least until the house is thoroughly dried out, and this often means unhealthily damp conditions for months after the dwelling is built. It must be papered or painted, resulting in a constant, lifelong maintenance cost which is avoided when certain types of self-finishing dry wall materials are used. It is subject to injury from sharp impact and from picture nails, and difficult to repair neatly when holes are punched in it. It is particularly weak when wetted by leaks and unless protected by a strong wallpaper may fall away from the wall or the ceiling when constantly dampened, creating a very real accident hazard in the home. Plaster suffers from a lack of flexibility, too, and will crack whenever the frame of the house shrinks or settles, creating unsightly conditions which are costly and difficult to repair. And it costs more than the more common dry wall finishes, such as gypsum wallboard and insulating fiberboard.

Two recent changes in plaster technology have added to the material's desirability, without markedly increasing its cost. The first is the advent of the lightweight plaster aggregates; the second the discovery of importance of eliminating unhydrated oxides from limes used in white-coat plasters.

The enormous growth in the use of the lightweight aggregates instead of sand—vermiculite, perlite, and similar materials—has resulted from the various ways in which they make plaster easier to apply and better as a wall material. Vermiculite and perlite result in a much lighter plaster, easier to install, more uniform in quality, and entirely independent of the vagaries, chemical and physical, which local sands so often produce in plaster walls. The aggregates weigh less than one tenth as much as sand, and are absolutely uniform, always resulting in the same kind of plaster mix if the original proportions in the mix are the same. Furthermore, the lightweight aggregates raise the thermal insulating value of plaster to a respectable degree, giving the material about three times higher an efficiency as an insulator than a sanded plaster. They also considerably reduce the danger of plaster cracks and holes, since it has a resiliency which sand lacks. On the other hand, according to the Bureau of Standards, the lightweight aggregate plasters have in the neighborhood of two to three decibels poorer efficiency as an acoustical insulator than a sanded plaster—a limitation small enough to be relatively insignificant, but still a limitation.

Although lightweight aggregates cost between two and three times as much as the sand they replace, many plastering contractors are able to profitably use this type of material at the same over-all installed plaster price as for the sanded plasters, because so much labor time is saved.

The second important technical advance in plasters, which affects the white coat materials, concerns the discovery by the Bureau of Standards that white-coat discoloration, blistering and failures, often occurring years after the walls and ceilings have been in place, are due to the presence in the limes of a considerable percentage of unhydrated oxides. These oxides gradually absorb moisture from the air over a period of years and weaken the surface until failure results. The Bureau has developed a minimum standard for lime plasters, based on its extensive tests, requiring that no lime contain more than eight percent unhydrated oxides, and the lime industry currently is offering such limes in special bags marked with an "S" brand. All architects specifying white coat plasters should require the use either of these "S" branded limes, or of limes with less than eight percent of unhydrated oxides. The latter is perhaps preferable, since a number of limes manufactured in this country naturally contain less than eight percent of the unhydrated oxides, among them all high-calcium hydrated limes and most of the highly-hydrated dolomitic limes.

conclusion

The place of plaster in the modern hierarchy of housing values has long been in dispute. Dry wall enthusiasts preach that its friability, its susceptibility to cracks and to disintegration when wet, the extremely large amount of water it brings into a house when new, and its added cost, all have served to make it obsolete in modern technical thinking. The fact that it requires regular maintenance and redecoration is also pointed to as an economic liability.

Proponents of plaster point to the fact that it produces an absolutely smooth and seamless surface; that it is traditional and consequently gives a plastered house a better and a higher resale value; and that its esthetic qualities in general make it superior to dry wall constructions, particularly those which are competitive in price.

Spokesmen on both sides of the argument, in neglecting to assay the performance of the various materials in the light of the standards set forth in this review, are actually telling only half of the story. When examined from the point of view of fire safety, acoustical insulation, resistance to decay bacteria, insect and rodent pests, and even strength, the merits of plaster seem to grow larger than its demerits, particularly for economical construction in homes where stability and safety are worth a few extra construction dollars, but where there is no budget for luxury.

On the other hand, it is important to point out that all the evidence is not yet in. We have no data from the Bureau of Standards, or any other reliable and independent testing agency of which the author has knowledge, as to the performance qualities of gypsum wallboard either in its single or double thickness, except for its thermal conductivity and its fire resistance, and here the data are only for the ½" single-thickness material. Adequate tests for decay, termite and rodent resistance, and standards against which to measure a given material's specific performance along these lines, have never been developed. No material has ever been adequately tested for sharp impact or for the damage done by picture nails driven into the surface; the few tests of nail-holding strength which Standards has performed were not designed to measure this sort of damage. In other respects as well our information regarding some of the most important performance qualities of some of the most popular materials used for inner walls is either seriously incomplete or entirely lacking.

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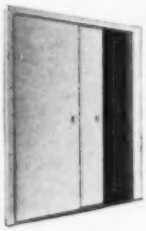

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air into either adjoining room; vent carries off all products of combustion. Input rating of 50,000 Btu. Pioneer Water Heater Corp., Pioneer Furnace Co. Div., 3131 San Fernando Rd., Los Angeles, Calif.

Individual Room Conditioners: individually controlled units for attachment to central system, designed to condition rooms in hotels, hospitals, offices. Chilled water cooling coils may be converted into heating coils by means of single switch. Worthington Pump & Machinery Corp., Harrison, N. J.

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Rain Cap for Thulman Chimney: rain cap and shield now incorporated on pre-built, all-metal chimney to prevent water from entering flue even during hard downpours. Topside louvers allow smoke to escape from vitreous enamel-coated, steel inner flue. Assembled unit hangs on joists for time-saving, low-cost installation. Majestic Co., Huntington, Ind.

Atlas Square Edge Form: new type of form, designed for use of all structures where architectural concrete is required, is now supplied with permanently attached "captive" fastener, eliminating waste motion due to extra handling and misplacing of parts. Forms can be crane handled in large panels or in light individual units for erection by one man. Basic units 12" wide, in varying lengths of 4' to 8'. Irvington Form & Tank Corp., 20 Vesey St., New York 7, N. Y.

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finishers and protectors

Cocoon: long-lasting, protective coating, based on Vinylite resins, for roofs subject to rugged weathering and manufacturing conditions. Resistant to moisture, abrasion, most acid fumes, will not support combustion. Material can be used to repair old roofs, or to seal cracks on new roofs before final coating; can also be used to seal rough walls. Hollingshead Corp., 840 Cooper St., Camden 2, N. J.

Liquid Raw-Hide Redwood Color-Preservative: nongloss, pigmented, wood-treating liquid penetrates wood, seals surface, repels elements, and adds uniform color that is fadeproof. Linseed Oil Products Co., 359 Del Monte St., Pasadena 3, Calif.

Hydropel: transparent, water-repellent coating for exterior masonry surfaces. Does not form a film and original texture and color of building is retained. United Laboratories, Inc., 16801 Euclid Ave., Cleveland 12, Ohio.

One-Coat Multi-Color Finish: said to be first multi-color enamel finish which makes it possible to apply two or more colors in single coat. Evenly distributed pigments produce attractive broken surface effect. Wide range of applications, including composition board, wallboard, beaver and asbestos board, furniture, etc. Primer coat necessary only when enamel is used on metal. Comes in flat, semi-gloss, and gloss. United Lacquer Mfg. Corp., Linden, N. J.

Water Purifier: compact device, weighing little over two pounds, will remove taste of chlorine, odors, and other contaminants from ordinary tap water. Can be installed at any location, convenient to sink or wash basin, by connecting small tube on filter to water line. Actual filtering is done by layers of fibrous material which are given an electric charge. Ogden Water Purifier Corp., Dallas, Texas.

Glasweld: glass-fiber tube and pipe material, designed as replacement for steel and other critical war metals. Product claimed to have strength of steel, is impervious to extreme heat, chemical action, and sledgehammer blows. Available as piping in oil and chemical processing industry and as tubing for building, electrical and allied fields. U. S. Plywood Corp., 55 W. 44 St., New York, N. Y.

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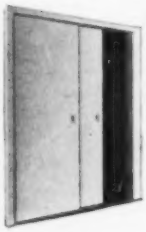

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doors and windows

Kwik-Out: steel window balancers providing very simple means of maintaining constant pressure between window and jamb, with ample friction to hold window in any desired position, yet allowing window to be moved up and down easily; no need for sash cords and weights. Windows may be instantly removed and replaced for glazing, painting, washing, etc. RCS Tool Sales Corp., Joliet, Ill.

Rolling Door Track and Hanger: single and double, all-steel tracks for interior doors. No detail millwork required for installation; doors entirely supported from top, eliminating floor tracks or grooves. Recommended load limit 60 lbs. Washington Steel Products, Inc., Tacoma, Wash.

electrical equipment, lighting

Lek-Gyde: combination safety guard and guide which prevents fluorescent lamps from falling, reduces 80% time required for installation of usual lamp guards, and lowers maintenance costs by making relamping one-hand operation. Fits any standard fluorescent socket. Edison Electrical Co., 355 Weybosset St., Providence 3, R. I.

"Coronet" Luminaires: line of fluorescent luminaires available for use with all four, five, six and eight foot fluorescent lamps, slimline, low-brightness, or starter types. Designed for offices, schools, other commercial interiors. Units constructed with all control equipment enclosed in steel housing; side reflectors available in alzak processed aluminum or steel finished baked white "Fluracite." Curtis Lighting, Inc., 6135 W. 65 St., Chicago 38, Ill.

Fluorescent Light for Kitchen Areas: circular ceiling fixture will distribute uniform, glareless light in dim kitchens, as well as in bathrooms, sun porches, or stairway landings. Finished in baked white enamel, has polished aluminum reflector, and contains long-life circular fluorescent lamp, 12" in diameter. Easy to install, fits into any type outlet box. Sylvania Electric Products, Inc., 500 Fifth Ave., New York, N. Y.

Type CA-10 Heavy Duty Floodlight: 250w unit designed for applications requiring floodlight of low wattage producing relatively narrow beam spread. Concave aluminum reflector, pressed heat-resisting glass lens, available in choice of plain, diffusing, or spread-type glass. Westinghouse Electric Corp., Pittsburgh 30, Pa.

finishers and protectors

Cocoon: long-lasting, protective coating, based on Vinylite resins, for roofs subject to rugged weathering and manufacturing conditions. Resistant to moisture, abrasion, most acid fumes, will not support combustion. Material can be used to repair old roofs, or to seal cracks on new roofs before final coating; can also be used to seal rough walls. Hollingshead Corp., 840 Cooper St., Camden 2, N. J.

Liquid Raw-Hide Redwood Color-Preservative: nongloss, pigmented, wood-treating liquid penetrates wood, seals surface, repels elements, and adds uniform color that is fadeproof. Linseed Oil Products Co., 359 Del Monte St., Pasadena 3, Calif.

Hydropel: transparent, water-repellent coating for exterior masonry surfaces. Does not form a film and original texture and color of building is retained. United Laboratories, Inc., 16801 Euclid Ave., Cleveland 12, Ohio.

One-Coat Multi-Color Finish: said to be first multi-color enamel finish which makes it possible to apply two or more colors in single coat. Evenly distributed pigments produce attractive broken surface effect. Wide range of applications, including composition board, wallboard, beaver and asbestos board, furniture, etc. Primer coat necessary only when enamel is used on metal. Comes in flat, semi-gloss, and gloss. United Lacquer Mfg. Corp., Linden, N. J.

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Wonderwall: 12" square insulating blocks for wall decoration, made of insulating fiber board permanently covered with Velon plastic sheeting; cannot be dented or torn, resists abrasion, and is washable. Simple, easy installation. Page Panel Co., 261 Railroad Ave., Cresskill, N. J.

sanitation, water supply, drainage

Tankless Water Heaters: two new models, standard unit without outer jacket and deluxe unit with well insulated metal jacket; both constructed with cast iron shell and spiral copper tube bundle. Each model available in three sizes. Bell & Gossett Co., Morton Grove, Ill.

G-E Garbage Disposer: completely redesigned unit, more economical to operate and at least 50% quieter than previous models; new shredding mechanism will reduce all food wastes, regardless of size and consistency, to tiny particles. Available in two models for sink installations having drain outlets 3½" to 4" in diameter. General Electric Co., Bridgeport 2, Conn.

Anti-Siphon Diverter: spray diverter for kitchen sink fixtures offers full protection against contaminated water passing into spout or waterway even with spray head immersed in polluted water. Back siphoning from spray unit cannot occur; approved by California sanitary code. Glauber Brass, Inc., Kinsman, Ohio.

Revolving Door Drain: designed for installation at entrance of revolving doors to drain away excess rain water. Cast iron drain body has nonskid Nicalun metal grate and flange which can be used as anchor in construction or for attaching waterproofing. Josam Mfg. Co., 303 Josam Bldg., 1302 Ontario St., Cleveland, Ohio.

Water Purifier: compact device, weighing little over two pounds, will remove taste of chlorine, odors, and other contaminants from ordinary tap water. Can be installed at any location, convenient to sink or wash basin, by connecting small tube on filter to water line. Actual filtering is done by layers of fibrous material which are given an electric charge. Ogden Water Purifier Corp., Dallas, Texas.

Glasweld: glass-fiber tube and pipe material, designed as replacement for steel and other critical war metals. Product claimed to have strength of steel, is impervious to extreme heat, chemical action, and sledgehammer blows. Available as piping in oil and chemical processing industry and as tubing for building, electrical and allied fields. U. S. Plywood Corp., 55 W. 44 St., New York, N. Y.

specialized equipment

"MA-ET": pre-wound, spring-driven fire alarm box, which may be automatically actuated by thermostats, or manually tripped by breaking glass. Recommended for surface or semi-flush mounting in industrial plants, hospitals, hotels, etc. Box includes facilities for testing spring-driven movement and signals without sounding complete alarm. Autocall Co., Shelby, Ohio.

Gas Ranges: new line of ranges, employing single top burner pilot light which ignites all burners and oven burner. Hardwick Stove Co., Cleveland, Tenn.

surfacing materials

Aluminum Moldings: line of moldings with the same permanent plastic finish as Marlite wall and ceiling panels, available in 11 matching Marlite colors, in 8' lengths. Surface needs only occasional wiping to keep it clean. Marsh Wall Products, Inc., Dover, Ohio.

THE

IN THE NEW Mirror Building, Los Angeles, California, the PC **Vision-Lighting** Plan — consisting of PC **Functional** Glass Blocks to direct daylighting, and panels of clear glass to permit ventilation and outside vision —was utilized as a basic feature of this ten-story structure. Standard sash for such combinations with glass blocks is readily available from many sash manufacturers. Architect: Roland H. Crawford, Beverly Hills, California.

PC Glass Blocks are available for functional and decorative purposes

DRIVE-IN BANK of the Fidelity Trust Company, Indianapolis, Ind., used PC **Functional** Glass Blocks for the triple advantages of protection, properly directed and diffused daylighting, and distinctive design. Architect: Edward D. Pierre, Indianapolis, Ind.

ARCHITECTS ARE fully cognizant of the decorative, as well as the utilitarian, value of glass blocks. In this bedroom, PC **Decorative** Glass Blocks admit ample daylight, assure complete privacy, reduce chilly downdrafts, add a pleasing touch to the room.

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Vision to the outside

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All PC Glass Blocks—*functional* and *decorative*—offer the ideal fenestration medium. For they have excellent insulating properties; require no repairs or replacements; no periodic painting or puttying. They reduce heating and air-conditioning costs; admit ample quantities of natural daylight; are easily cleaned.

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New, exclusive features in PC **Functional** Glass Blocks make the PC **Vision-Lighting** Plan even more effective for daylighting areas where critical seeing tasks are performed. These include light-directing prisms on the interior faces of certain patterns, light-spreading corrugations on outside faces, a fibrous glass insert to diffuse still further the light transmitted by the block itself, and the PC Soft-Lite* Edge Treatment, which creates a better, more comfortable "eye-ease" panel appearance.

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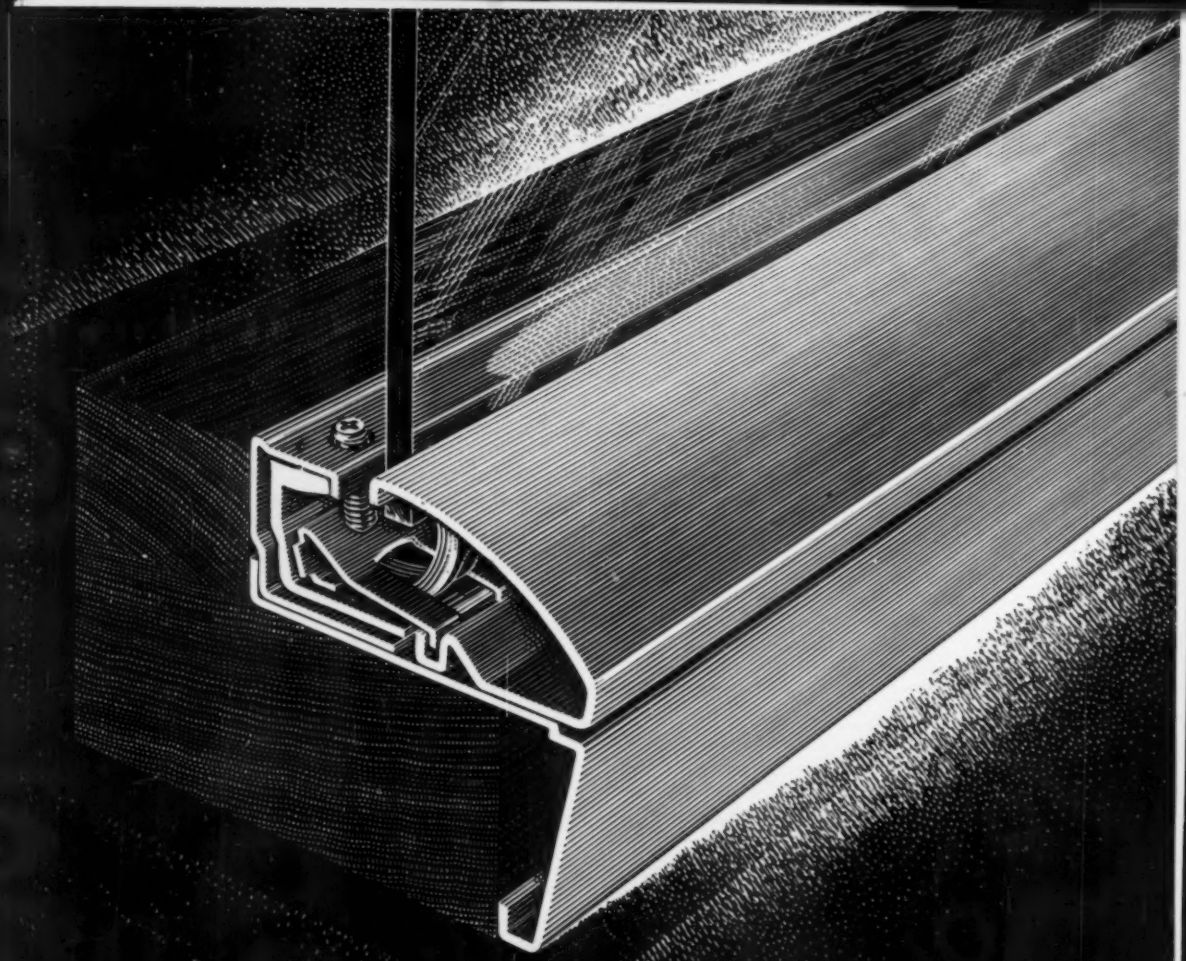

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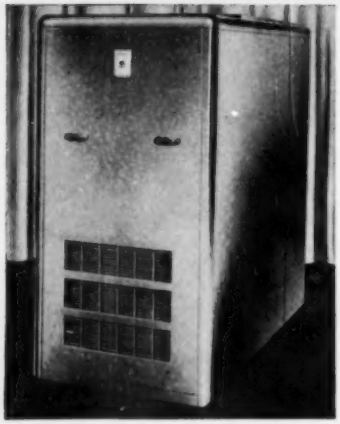
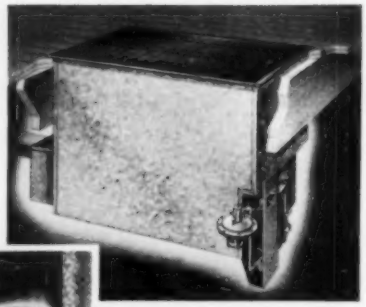


WINTERWAY: This brand-new, efficient, basement type winter air conditioner is made in two sizes—100,000 and 120,000 Btu capacity at register—to meet the oil heating requirements of small and medium size homes. The Winterway has a sturdy steel heating element with wrap-around type radiator that completely encircles the shell. Flue can be located on either side.

New products to choose from when you're selecting quality heating equipment and plumbing fixtures

ARCOLINER: The famous Arcoliner Wet Base Boiler (for steam and hot water systems) is now also available in this new model for hot water only. This limitation has made possible important cost savings while still retaining full American-Standard quality. This economical boiler offers all the advantages of completely automatic heat plus the convenience of year 'round hot water. Jacket extension optional.

NAVAHO: This new gas floor furnace is only 27½" deep, takes up very little floor space. It can be installed easily in small buildings with or without a basement, and requires no excavation. Factory-assembled, it is available in three sizes with Btu input per hour of 25,000 to 50,000 and can be supplied with flat floor grille or dual wall register. It burns manufactured, natural, mixed, butane, propane or butane-air gas. →



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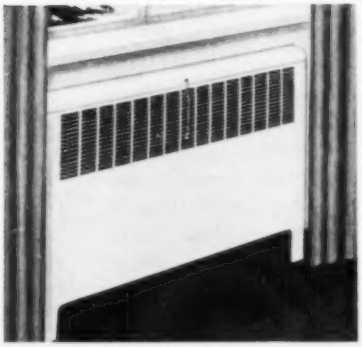
STANFLAME: Wide modernization activity and the rapid increase in gas heating facilities give special interest to this new conversion burner. Of a vertical, upshot type, the Stanflame operates efficiently with boiler, furnace, or winter air conditioner . . . burns manufactured, natural, mixed, liquefied petroleum, or LP-air gas. Available in two sizes, with easily adjustable input feature.

SINK CABINETS: These handsome-looking, smooth-front, steel cabinets, designed for the famous Hostess Sinks, provide lots of storage room and are fitted with just about every modern convenience. They harmonize with base and wall cabinets of any design.

TRIWELL SINK: A double-compartment sink with handsome new fitting, the Triwell Sink is both good-looking and practical. It has a covered third well between the regular compartments containing a hidden, removable garbage basket of non-tarnishing chromium-plated brass. Easy to clean, easy to keep clean.

THE NINE products shown here are representative of the many new additions during 1950 to the American-Standard line of heating and plumbing products—the most complete in the industry. These new additions give you still wider flexibility in designing and styling . . . afford even greater choice of units to fit today's varied needs. Their engineering and construction advantages assure long, efficient service.

With the new American-Standard Catalogue it is amazingly simple to choose quickly and accurately just the right plumbing fixtures and fittings for every job. Your Heating and Plumbing Contractor will be glad to give you full information on the *complete* American-Standard line. **American Radiator & Standard Sanitary Corporation,** P. O. Box 1226, Pittsburgh 30, Pennsylvania.



NEW MULTIFIN CONVECTORS: The New Multifin line of convectors, designed for installation in all hot water or steam systems, includes sizes ranging from a small 18-inch high, 4-inch deep unit to a large 38-inch high, 10-inch deep unit. There are 63 stock model sizes for either free standing or recessed installations, plus special service models to meet special building requirements.

DRESSLYN: The new Dresslyn is both a lovely lavatory and a distinctive dressing table combined in a single unit. Available in two styles, two sizes, and in 31 color combinations, it features a deep-bowl lavatory of genuine vitreous china . . . has plenty of storage space and ample counter top area.

LOOK FOR THIS MARK OF MERIT

SANISTAND FIXTURE: The Sanistand Fixture offers women the same convenience and sanitation the standing urinal does for men . . . makes washrooms cleaner, neater . . . reduces rest room maintenance. Enthusiastic approval by thousands of women in extensive test installations has led to hundreds of permanent installations.

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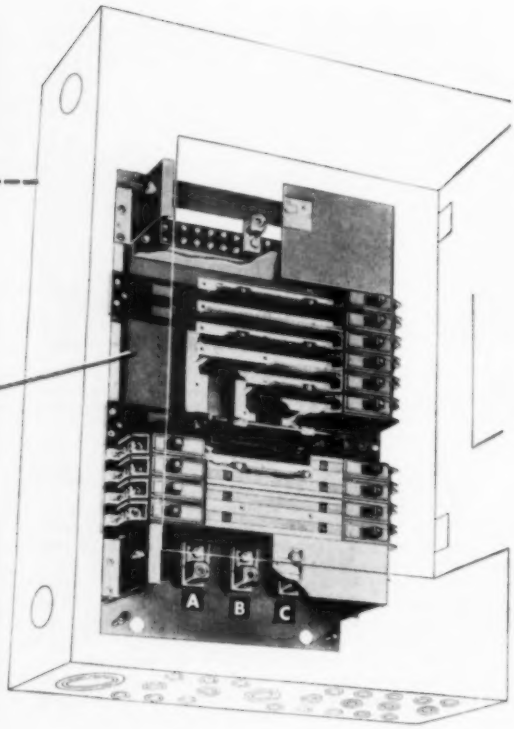


. . . to check FITNESS in panelboards

Good breakers don't necessarily make a good panelboard. That's why it's important to look *behind* the breakers . . . to check construction details . . . to search for potential sources of trouble. But when panelboards and breakers are made for each other, this problem is eliminated . . . as it is when you specify Westinghouse.

Westinghouse Panelboards are Westinghouse throughout! You get the well-known dependability and quality of Nofuze "De-ion" Breakers . . . in a panelboard designed specifically to assure their finest performance.

Dependable breakers in a skillfully designed, well-constructed panelboard—this is the kind of quality you'll want to call for in your specifications. Next time, specify Westinghouse Panelboards . . . and be *sure!*

Descriptive Bulletin 30-930 contains complete information plus typical specifications. For your copy, write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-40382

Westinghouse PANELBOARDS

technical press

By JOHN RANNELLS

Long-Range Construction Costs

The U. S. Department of Commerce puts out a lot of good figures. A bookful of them on Construction and Construction Materials is their *Statistical Supplement, May 1950—Construction Volume and Costs, 1915-1949*. Like all substantial collections of tables it's pretty hard for a stranger to "make out the forest for the trees." Even the excellent summary diagrams in this 88-page book aren't quite in shape to take in at a glance.

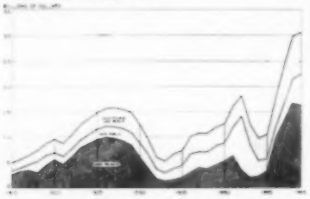
Take, for instance, their graph of Total Construction, 1915-1949, reproduced below. It shows the total, all right, and the New Private Construction clearly enough, but no clear picture comes through for New Public Construction and for Maintenance and Repair. The only way these can all be grasped in relation to each other is to plot each one on a straight base. This is done in the sketches below the Department of Commerce drawing.

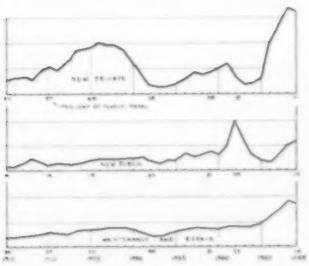
A quick look at this shows at once the high spots and low spots through the years not only for the total but for each component. The very considerable differences between public and private construction at different times are not unfamiliar to anyone who has been observant through the years, but the amount and steadiness of expenditure for maintenance may be a surprise to most of us. It was to me. (To get a little better grasp of proportional expenditure for the different purposes, figures showing percent of total expenditure for the year are placed at key years under each graph.)

The skyrocketing dollar outlay in the last five years comes down to "normal" proportions when adjusted to 1939 prices—see the graph "Value of New Construction, Actual and Adjusted, 1915-1949." What the "adjusted" total

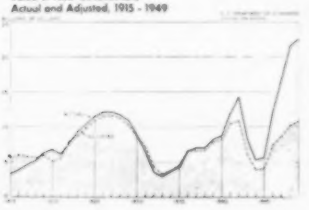
(Continued on page 108)

Total Construction 1915 - 1949

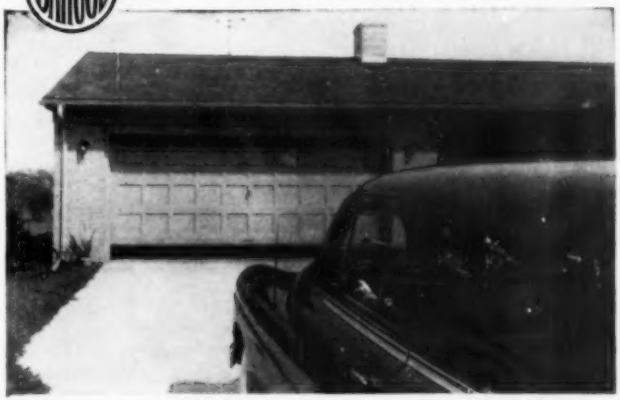




Value of New Construction, Actual and Adjusted, 1915 - 1949



BARCOL ◆ LOOK FOR THIS MARK OF QUALITY



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technical press

(Continued from page 107)

shows, really, is bulk, and, as far as construction is concerned, it shows that the highs in 1941-2 and 1948-9 are about the same as in the mid-twenties.

These graphs cover all kinds of construction—not only buildings, but highways, railroads, river and harbor work, water and sewer systems, etc. The tables contain all the details, of course, but to a graphic-minded architect they don't tell much until they are "laid out on the line" so they have a shape. (Try it, once, to prove your own pet point. It's fun.) Digging into that persistent maintenance item, for instance, in residential and other building construction it is much steadier than new construction. In the slump years of '32 to '34, outlay for new residential construction actually fell below the outlay for maintenance and repairs. This was again true in '44.

All this reminds us that most of our buildings last a long time and brings up again the question of obsolescence of materials and of use and of style. There are plenty of century-old structures in our eastern cities more readily convertible to present uses than most of the 50-year-olds that were "high-style" when they were built. Leaving aside unsound structures ripe for condemnation, usefulness is mostly a matter of floor space that isn't too chopped-up by specialized planning integral with structure. (This is just about the reverse of the theory of architecture taught in the eclectic heyday of the historic styles and even in the early "functional" period, say, 25 years ago, when the building was specially tailored to fit the client's immediate functional needs.)

Buildings frequently last longer than businesses or, at least, they stay longer in the same place. The volume of existing buildings requiring maintenance is, of course, enormously larger than the volume of new buildings. The great amount of store work in the form of complete alterations to existing floor space points the way to further utilization of the structures we already have in our cities. All this work (and it's good architecture, much of it) rates as maintenance and repair in this Department of Commerce Bulletin.

How To Provide More Washing Facilities In Less Space

Use BRADLEY WASHFOUNTAINS

Bradley Washfountains serve 8 to 10 persons simultaneously, save space and water, require but one set of piping connections (hot water, cold, and drain) for each of the group fixtures.

A central sprayhead eliminates need for faucets, and automatic foot-control turns water on or off. When washers leave, water flow is cut off. Bowl is self-draining, and there are no collections of dirty water.

Catalog D-713 shows how to arrange washrooms for maximum capacity, economies, and sanitation in minimum space. Write for a copy today—no obligation. BRADLEY WASHFOUNTAIN CO., 2382 W. Michigan St., Milwaukee 1, Wisconsin.

Above: Typical installation of Bradley Washfountains showing the 54" full-circle model.

Right: Close-up view of Bradley in use illustrating even distribution of properly tempered water to one to ten persons simultaneously.

BRADLEY washfountains

Distributed Through Plumbing Wholesalers

100 Years of Lighting at Pagel's Shoe Store

That is the engaging title of a brief article in *Illuminating Engineering* for August. They don't say what the lighting was like a hundred years ago but in 1879 it had the latest—kerosene. Carbide, installed in 1898, was difficult to maintain, so gas fixtures were put in by 1900. Electricity was included in the next modernization in 1904 but the gas mantle lamps were retained as a stand-by. (There's many a gas fixture in New York today, adapted to electricity—*vide* McSorley's for museum pieces.)

In 1928 the store was modernized again with new cases and flooring and the most improved type of enclosing globes for lighting. In 1935 semi-indirect luminaires replaced the globes and in 1942 the store was again refurnished, relighted with unshielded fluorescent fixtures and mechanically ventilated. The old pressed-steel ceiling with its "classic cornice," relic of the turn of the century, was still there, though.

Recently a complete transformation was made, opening up the selling space by removing the stock to the rear and doing a bang-up "modernization" job. The article tells all about the fixtures and reflectances but not the name of the architect.

In the main body of this narrow store the chief light source is a louvered closeup fluorescent fixture with luminous side panels which effectively light the entire ceiling and built-up adjustable incandescent spots between each eight-foot fluorescent section. Addi-

(Continued on page 110)

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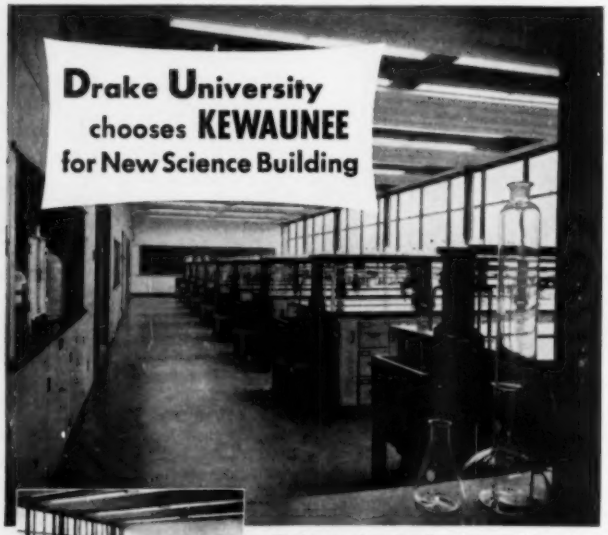
technical press

(Continued from page 108)

tional flush incandescents light the alcoves which break up the overly long plan.

Not many stores have been in one place for a century. This one looks now as though it had just been built, proving that it isn't necessary to tear down half the buildings to "modernize Main Street." "Techniques of Lighting Small Stores," by Morris Ketchum, in the same issue of *Illuminating Engineering*, gives a lot more "how to" and "why" than the article on the long-lived Philadelphia store. Illustrated by some of his own excellent rejuvenation jobs, he tells how to make the most of existing space by controlled use of lighting. He includes a caution on louverall ceilings which is worth repeating. They can be effectively used, he says, provided there aren't too many glass-topped fixtures on the sales floor. The 45° cut-off of the louvers is fine so long as you don't see the reflection of the light source in glass counter-tops. Ketchum's office never uses this device indiscriminately on large interior sales floors. In the Fifth Avenue Florsheim store, the few glass-topped counters are placed near a dark wall. The sales clerk may get a sock in the eye, but not the customer.



Three of the many science rooms at Drake University, equipped by Kewaunee. TOP—General Chemistry Laboratory; CENTER—Pharmacology and Physiology Laboratory; BOTTOM—Physical Science Laboratory.

Design, engineering, function, quality, value. All entered into the selection of equipment for the new Science Building at Drake University. And *on every count*, Kewaunee Laboratory Equipment stood at the head of the class!

Kewaunee design and engineering conform to the needs of the *future* as well as the present. Both wood and metal construction is "Custom-quality"—mass-produced to bring costs down to the "ready-made" level.

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The Economic Lighting Limit

Samuel Adams Bogen, in a very brief (two-page) article in *Illuminating Engineering* for August, tackles a big problem that has been too much neglected. Lighting designers don't recognize anything under 125 foot-candles as a source of heat but air-conditioning engineers insist on designing to remove all the heat output of the interior lighting system. Bogen calculates that under ordinary conditions each 100-watt lamp requires about $23 worth of air-conditioning equipment to remove its heat; that increase of a lighting design from 30 foot-candles to 50 would add about 10 percent to the cost of air conditioning.

Several technical things can be done to help the situation: heat absorbing glass in the fixtures; separate ventilation of ceiling space where there are recessed fixtures; even paint with selective reflection factors—much more for visible radiation than for total radiation. The main thing the lighting engineer (and the architect) can do, however, is to take air-conditioning costs into account as part of the budget estimates. Seen in these terms, money saved on low-cost incandescent fixtures may be more than offset by added outlay for air conditioning.

This kind of over-all balancing of various budgetary considerations is one of the main functions of the architect who must "take in a lot of territory" in advising his client how to spend his dollar. "Stud Welding," a chapter reprinted from the *Welding Handbook*, third edition, published by the American Welding Society, is available on request from the Nelson Stud Welding Division, Morton Gregory Corporation, Lorain, Ohio.

Stud welding is an electric arc-weld process in which the stud or fastening device forms the electrode and is shoved into the surface to which it is to be welded. The process is similar to manual metal-arc welding except that establishment of arc, determination of welding time and final push on the stud to complete the weld are controlled automatically. It is especially suited to certain industrial products which require a lot of bolted fastenings. It is a natural for fastenings to steelwork which are best fitted in the field, most especially connections to metal ceilings for hangers of all sorts.

The hand-gun for stud welding is undoubtedly the prototype of the Buck Rogers side-arms, except that the earth-bound version has some heavily insulated wiring attached.

(Continued on page 112)

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These modern West Coast communities are the latest in an impressive list of MA-TI-CO installations that include apartment houses, public and private institutions, industrial plants, stores and private homes.

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A24

technical press

(Continued from page 110)

The handbook gives minimum clearances, stud specifications, wiring diagrams, etc.

PERSONNEL SAFETY

American Standard Safety Code for Manlifts. ASA A90.1—1949. *American Society of Mechanical Engineers, 29 W. 39th St., New York 18, N. Y. 24 pp.*

Now what in Tunket is a manlift? Never heard of one? Neither had I. Seems it's a moving belt with brackets to step on and handholds to hang on to —for transportation of plant personnel from floor to floor. If any gadget needs a safety code this one is it! It is reported here to illustrate again the excellent procedure which gets needed standards established. Here is the foreword:

"This project, initiated by the Safety Code Correlating Committee of the American Standards Association, is sponsored jointly by the Association of Casualty and Surety Companies and The American Society of Mechanical Engineers. A representative Sectional Committee on a Safety Code for Manlifts (A90) consisting of nineteen members representing manufacturers, users, insurance groups, enforcement officials, and independent specialists, was set up and the organization meeting was held in December, 1948. At that time three subcommittees were appointed to (1) review existing codes, (2) draft definitions, and (3) prepare a tentative draft.

"The tentative draft prepared by Subcommittee No. 3 was sent to the sectional committee for criticism. As a result of the comments received from this group, a revised draft was prepared and sent to about two hundred manufacturers, users and other consultants. The criticism resulting from this wider distribution was reviewed at a meeting of the sectional committee in June, 1949, and final modifications were made.

"The final draft was approved by letter ballot vote of the sectional committee on September 29, 1949, and following approval by the sponsor bodies, it was presented to the American Standards Association with the recommendation for approval as an American Standard. This designation was given on December 20, 1949.

"The committee will welcome criticism or comment resulting from actual use of this standard. Such comments will be given careful consideration when the code is revised."

Come to think of it, I *did* see a manlift once—in the movies. It was Doug Fairbanks' first "In Again—Out Again" and one of the first, surely, to have pre-publicity in the form of a short. (Not a "preview"; that hackneyed silver-bullet dose was a later technological development of the Hollywood pharmacopoeia. This one was circus-style: a view of a hanging scaffold on the blank wall of a high building, with a wonderfully agile bill-poster plastering up, sheet by sheet, with flourishes, the announcement of the coming picture —then, a flash of the Fairbanks smile and descent, with acrobatics, down the rope.) The culminating brawl in the film itself was a free-for-all in a brewery, involving Doug, Bull Montana, and the villain, with the main drive belt from the Corliss engine going up through the ceiling and the flywheel and balls of the governor maintaining their serene rhythm in the background. That belt was used with telling effect to get Doug out of a spot or bring him back at just the right instant to bop the mystified villain on the head. Those were the days! No sound to distract from the pure enjoyment of the visual image except the yells of us kids down front. Perhaps the Marx brothers

(Continued on page 114)

Manhattan Room, Hotel New Yorker, N. Y. Bar front covered with Kalistron of special design in black and two shades of gold. Special green Kalistron used on banquettes, side chairs. Table tops of Micarta Truwood. Designer, Walter M. Ballard Corp., N. Y.

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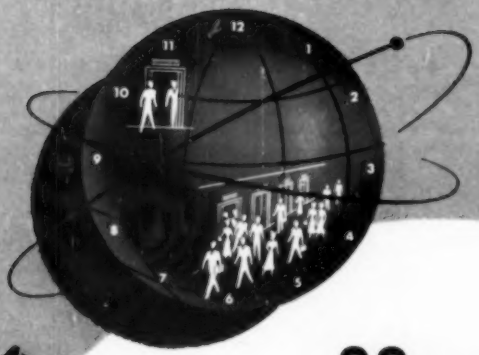

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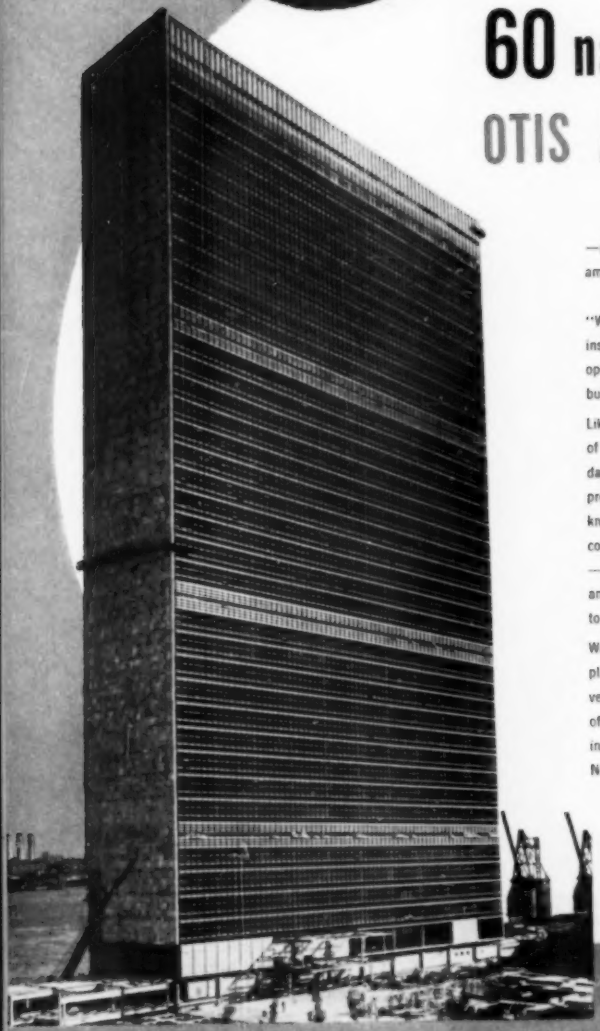

Secretariat Building **UNITED NATIONS** New York City

Otis

AUTOTRONIC
Traffic-Timed
ELEVATORING

technical press

(Continued from page 112)

should get this old one out of the vault and look into the technical possibilities of the manlift (*pre*-ASA 90.1—1949).

The Mahogany Book. *Mahogany Association, Inc., 75 E. Wacker Dr., Chicago 1, Ill. 7 Edition, 1948.*

Handsome as ever, the newest edition of this promotional booklet gives a thorough picture of mahogany from forest to finished product. The emphasis is still on fine historic furniture, but contemporary architectural interiors and furnishings and commercial uses such as molded products, receive more attention than in the earlier editions. Some 30 mahogany-red photographs illustrate the decorative figures for which this wood is valued.

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BOOKS

THE UNRULY SPIRIT

The Work of Oscar Niemeyer. *Stamo Papadaki. Reinhold Publishing Corp., 330 W. 42 St., New York 18, N. Y., August 1950. 219 pp., illus. $8.50*

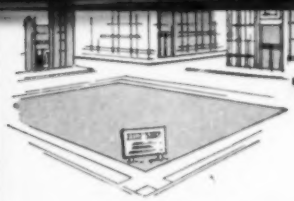
In a handsome volume of more than 200 pages, Stamo Papadaki has given us a fine collection of photographs and drawings of the work of the Brazilian architect, Oscar Niemeyer. Since Niemeyer's influence is widely felt in our own country, the appearance of this book, and the sharper understanding of Niemeyer that it affords, is of no small importance.

I had always felt, even in moments of strongest admiration, that Senhor Niemeyer was, as most truly creative men are, the victim of conflicts in the world about him and within himself. And now, in his own foreword, he gives direct support to this view. He says, "Architecture must express the spirit of the technical and social forces that are predominant in a given epoch; but when such forces are not balanced, the resulting conflict is prejudicial to the content of the work and to the work as a whole."

This is a tremendously revealing statement. It is the key to understanding not only Niemeyer, but a host of lesser (and perhaps a few greater) men. It explains why certain of Niemeyer's works, such as the Hotel at Ouro Preto, or the Ministry of Education and Health at Rio de Janiero, have a richness of rhythm, a sophistication of scale, a delicacy and refinement of light and shadow that astound and delight at the same time; while other buildings have a harsh, tortured quality that seems almost deliberately self-inflicted. (I am thinking particularly of the design for the Twin Theaters at Rio, or the monument for Ruy Barboza.) In the former projects, Niemeyer was relatively at peace. He was acting as the skilled artist of his society, the faithful servant of his time, which is a time of mass production, of identical units, of great numbers, of statistical quantities both as regards things and people. When Niemeyer accepts this view of the world his genius for patterned rhythm flows freely and the results are superb (with one important exception, which I will come to later). But more often than not, he refuses to accept it. His spirit is too unruly and his ego too rebellious for that. And so right along with his refined and subtle rhythms we find explosions of rash, amorphous forms, occasionally (though not too often) shockingly crude.

Notice his hotels—particularly the one at Pampulha. The program demanded a great multiplication of units, as large hotels always do, and while he dealt with that aspect of his problem, Niemeyer was masterful. But when he got to the grounds, he broke loose with

(Continued on page 116)



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(Continued from page 114)

all the wild exuberance of a child released from school. I do not mean to say that he should not be exuberant. More power to him, and three resounding cheers! There is nothing we need more these days than some healthy, high spirit in our architecture. What I mean to say is that between Niemeyer's patterned intellectualism and his bursting playfulness there is no harmony, no integration of purpose, but rather conflict—awkward, unresolved conflict.

Yet in a way I prefer Niemeyer's conflict to the kind of total integration that appears in the exception I mentioned a while back—the United Nations Headquarters, of which Niemeyer was one of the associated architects. Here the conflict was resolved by the elimination of all feeling whatsoever. The design has elegance, yes. Refinement, yes. But emotion? Not a whit, or I am the most calloused of observers (which is entirely possible). This hardly seems the place to take even an architectural swipe at the suffering United Nations, but if ever artists failed to be moved by the ideal of the brotherhood of man, it was when that design was committed to paper.

Niemeyer's emotion may be in conflict with his intellectualism, but at least it is there. It is alive and vibrant, arrogant and intransigeant. I like it. Even at its crudest, I like it. There is the exciting suggestion in all of Niemeyer's work, the bad as well as the good, that we may be watching the growth of one of the great.

Incidentally, and just as a footnote, I was rather intrigued in looking over the photographs of the Academy for Boys at Cataguzes to notice a shot of the swimming pool with eight quite unmistakable young ladies poised on its edge. Brazil evidently is emotional about education, too.

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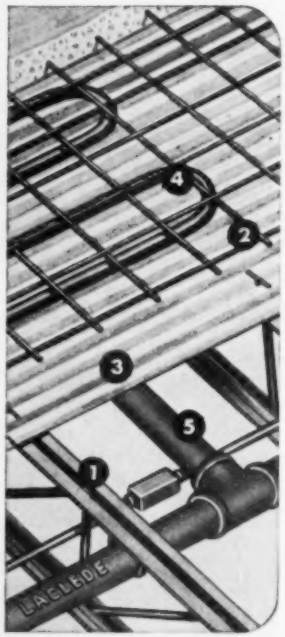

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RECOVERING NAZI LOOT

Survival. *The Salvage and Protection of Art in War. James J. Rorimer, in collaboration with Gilbert Rabin. Abelard Press Inc., 381 Fourth Ave., New York, 1950. 291 pp. illus. $4*

The most recent wartime relocation of Europe's private and state art heritage —result of the ancient practice of looting captured museums, galleries, and mansions that always involves some losses and lasting damage to more fragile heirlooms—moved the last Roosevelt administration to create in 1943 the American Commission for the Protection and Salvage of Artistic and Historic Monuments in War Areas. On the advice of this Commission, the War Department selected, a year later, a handful of art experts and architects to accompany advancing Allied armies as Monuments, Fine Arts, and Archives officers. This is the rather detailed account of the MFAA experiences of the learned Director of The Cloisters and Curator of Medieval Art, Metropolitan Museum, New York, as he dared enemy action and generals' snubs to minimize wanton destruction and to rescue plundered art treasures from Normandy to Berchtesgaden.

The immediate move as each new area was occupied by the Allied army was to protect from native or invading vandals those architectural monuments that had escaped destruction during the battles of capture. The salvage of precious fragments from rubble, the search for stolen works of art began at once. Evidently Rorimer's skill in reassuring suspicious French curators or building guardians, later his adroitness in winning cooperation of surly German experts who necessarily knew the secrets

(Continued on page 118)

In Lone Star's Reception Room ten 33½" x 41" panels of white translucent PLEXIGLAS are mounted 12" below twenty 30-watt, 36" fluorescent lamps, spaced on 16" centers. Average illumination: 55 foot-candles. Design and installation by The Frink Corp., Long Island City, N. Y. Architects: Kenneth M. Ripnen Inc., New York City. Lighting Consultant: E. B. Silverman, Smith & Silverman, New York City.

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(Continued from page 116)

of the gigantic Nazi plot to amass for the Master Race the best of all Western Europe's art, were strong factors of his success in saving whole trainloads of incalculably rich loot. The capture of lists and catalogs prepared by the efficient German experts directing the removal of art treasures to the safety of salt mines in Bavaria (where the humidity was usually right for safe storage) and to other prepared secret caches, assisted enormously in return of lost works and subsequently in the indictment of the looters at the Nuremburg trials. Evidence also was uncovered of the Goering-Hitler-Rosenberg methods of acquisition of "their" cultural treasures.

Severe in his denunciation of German theft or wanton military destruction of works of art, Rorimer softens his account of similar American acts (documented in this book sufficiently to leave no doubt of their sad effects) with the explanation that our military usually didn't know the value of the treasures taken or destroyed. The American staff's reverence for picture magazine publicity helped MFAA measurably. After the news splash on the first art collection discovered in a salt mine, every general wanted to find one! A telling note on Germany's arrogant assurance of victory without damage at home is the author's comment that priceless contents of Berlin museums and many architectural monuments of the country were needlessly destroyed because art at home was not protected as well as were the stolen works from occupied countries. C.M.

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EXHIBIT NEWS

Volume I, Number 1 of *Gallery*, a monthly to be devoted to previews of major fine arts exhibits in American museums and galleries (commercial and noncommercial), appeared on our desk last month. The editor, Walter Adams, promises to include in each issue a major article on some important topic relating to contemporary fine arts. First to appear, in the September issue, was an illustrated account of the Alfred Van Loen Studio Gallery in New York's Greenwich Village. Principal space was given to previews of September exhibits over the country. C.M.

BOOKS RECEIVED

Moholy-Nagy. Experiment in Totality. Sibyl Moholy-Nagy. Harper & Bros., 49 E. 33 St., New York, N. Y., 1950. 253 pp., illus. $6.50

Buying a House Worth the Money. Frazier Forman Peters. Little, Brown & Co., 34 Beacon St., Boston 6, Mass., September 1950. 157 pp., illus. $2.75

The Complete Book of Built-Ins. William J. Hennessey. Harper & Bros., New York, N. Y., October 1950. 182 pp., illus. $3.50

Comparative County Data. State Planning Board, Pennsylvania Department of Commerce, Harrisburg, Pa., 1950. Vol. 10, No. 5. 40 pp., illus.

Museum Buildings. Volume I, A Planning Study. Laurence Vail Coleman. The American Association of Museums, Washington, D. C., September 1950. 298 pp., illus. $10

Norwegian Architecture Throughout the Ages. Compiled by Eyvind Almaes, Georg Eliassen, Reidar Lund, Arne Pedersen, Olav Platou, with a historic survey by Georg Eliassen. H. Aschehoug & Co., Sehestedsgt. 3, Oslo, Norway, 1950. 424 pp., illus. Price: Norw. Kr. 78.00

Redevelopment Project No. 1. A Second Report to the Mayor and the City Council of the City of Chicago and to the Illinois State Housing Board. Prepared by R. S. Gruhn, J. D. Murphy, M. P. Webster, William L. Barkow, Helen F. Pope. Chicago Land Clearance Commission, July 1950

United States Civil Defense. Pamphlet from the Executive Office of the President of the National Security Resources Board, embracing material from Hopley Report issued by the Dept. of Defense, and building upon the wartime experience of Great Britain and Germany, as well as upon previous planning by agencies of the U. S. Government. U. S. Government Printing Office, Washington, D. C., 1950

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By CARL FEISS

He who makes history makes the bread of life.
The historian sweeps up the left-over crumbs;
The history teacher hopes to recreate the whole loaf from the crumbs;
He who only learns history substitutes the crumbs for more nourishing fare, but
One cannot make fresh bread from old crumbs. *The Old Philosopher*

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Back in May 1950 P/A, in the rather long listing of problems facing architectural education, I raised the question whether architectural history should be taught at all. It was not meant to be facetious—but nobody took it seriously except me.

Having been raised in the era of the University Prints when the memorizing of dull photographs of dull buildings and dull photographs of interesting buildings and dull dates and dull names in dull order was the rota, I learned, perforce, that history was an admirable thing. All of the best architects knew about it and were constantly referring to it for ideas. In those days, everybody was collecting a set of picture books called *The White Pine Series*. They were full of pleasant photos of old New England, and occasionally Virginia or Middle Atlantic, buildings, cornices, mantels, doorways, and balusters. While we did not actually study the series in our history courses and there were no design problems related to them, we instinctively knew that, once in an office, they would prove invaluable to us as a source of "cribs." That was certainly true in the first offices in which I worked.

●

Before I go any further, perhaps I should identify myself, not as an expert historian, but as an interested party. Since its early days I have been a member of the American Society of Architectural Historians which has been kind enough to publish two of my papers in its excellent and scholarly *Journal*. I have taught architectural history courses in a university. I have a good small library of books on the history of architecture and planning, including a few valuable early editions and rarities. At the moment I am collaborating with a real scholar on the writing (and we hope, publishing) of a book on the history of pioneer and colonial city planning in the United States and Canada. So, if what I am about to say disturbs your equanimity a trifle, remember please that your columnist likes history for its own sake.

●

While it is axiomatic that the honorable and also less praiseworthy backgrounds to an art or a science are part of the culture in which the art or science thrive, these backgrounds are not in themselves the art or science. When Ben Franklin drew sparks from his key on a

(Continued on page 122)

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(Continued from page 120)

kite string he was not anticipating the TVA. We are proud of Ben and the TVA both. But Ben is only a step in a process, just as the TVA is only a step in a process. Ben is of historic importance because we happen to know of him. Chances are that in many parts of the world, including many parts of our own country, Franklin's experiments are not as important as the bathroom light switch. So with comprehensive architecture. Its background has interest but the art-science itself is the pragmatic production of today with tomorrow's objectives.

Cities of the world are outdoor museums of architecture. Some of the exhibits are good, some bad, many badly maintained and displayed, most not worth exhibiting. History which associates men with places and events, associates buildings with traditions of men's use. The Mayan ruins are romantic because our imagination is needed for their understanding. Like an abstract painting, an anonymous ruin brings to play all of the imagery required for full understanding. Children build houses with blocks, not because the result looks like a house, but because the imagery is sufficient to satisfy. The Parthenon has no roof. No one knows exactly what the roof was like. But history doesn't care, even though historians do. All that was needed, like Franklin's spark, was the historical event that created a chain reaction lasting 1450 years. This ruin has historical significance as part of a continued series of events, romantic or otherwise, which makes it more important as imagery to the art-science of architecture than the Mayan ruin, which had no known history; or the ruins of Egypt, whose history, though long, stopped dead within a century after the birth of Christ, leaving no significant chain with which to attach a future.

Other buildings or cities have had the same casual effect. Historical groupings of buildings in "styles" weave in and out of the time series—classical, medieval, classical medieval, etc. The purpose of the building is lost in the romantic vapors of history. The historian licks his chops at each newly discovered nuance in the chain of events. The true meanings of architecture, lost in the mists of substitutes for reality and the veneers of historical dress also are lost to student and teacher as well.

●

Our text books, purporting to teach history, have taught styles and influences of styles or structure as a poor high school music teacher might teach

(Continued on page 124)

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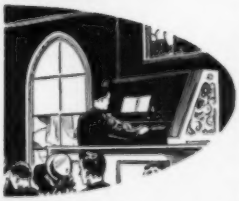

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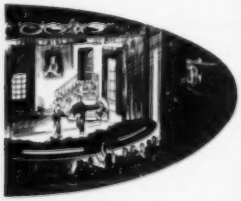

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out of school

(Continued from page 122)

scales to a half-back on the freshman team. Let me quote from that great *tour-de-force* of architectural historical books, the banality of its text being exceeded only by the pointlessness of 80 percent of its exquisite drawings. Latch onto Sir Bannister Fletcher (page 448) in an effulgent mood:

"The *Sainte Chapelle, Paris* (AD 1244-47), built by S. Louis, in which the space between the buttresses is occupied by windows 15 feet wide and 50 feet high, is often quoted as a typical Gothic structure. The plan was in size similar to that of S. Stephen, Westminster, which was ruined by fire, and demolished for the rebuilding of Westminster Palace. It has a richly vaulted crypt, and such characteristic French features as the apsidal termination and high stone-vaulted roof."

Gentle reader, have you been to the Sainte Chapelle? And what in Heaven's name has the extinct Westminster Chapel, built a century later and Westminster Palace built in 1840 got to do with one of the splendid expressions of man's emotional and structural genius? By the way, what was the building for?

With handicaps of such impoverished texts and visual aids, the teachers of our teachers left us the heritage of instruction of architectural history as it appears today, redolent with unpertinent fact, and without meaning to the average student. The solution to this problem is of major concern to us for it is obvious that future cultural values drawn from life of today can only develop from the fully grown man of today.

●

Education, even specialized education, is responsible for the development of the whole man. Remember what Launcelot Hogben said, "The education of the scientist and technician gives him no prevision of the social consequences of his own activities." Only history truly taught can give some idea of what architecture might be.

One phenomenon in our architectural curricula is the separation of "history" (presumably things, places, dates, and architects) from "theory" (presumably the whys, wherefores, and whatnots). I never could understand the reasoning behind this. It is as though one batch of teachers could remember the facts but not the reasons behind the facts and another could emote on philosophy but had a bad memory for dates. Obviously, such artificial separations only further confuse, even when one professor teaches both.

From the point of view of logic, architectural history is taught in reverse. The obvious way to teach a subject which can only be handled second hand —that is by books and visual aids—is to associate the subject with the students' experience. What student has had

(Continued on page 126)

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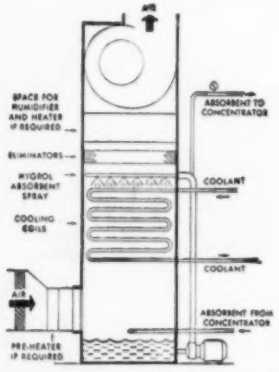

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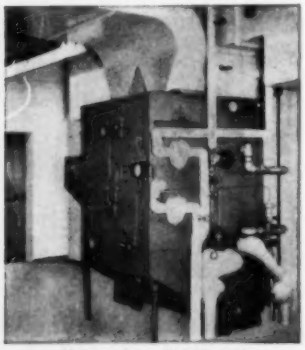
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out of school

(Continued from page 124)

experience with the prehistoric lake villages of Switzerland, the mastabas of the Third Dynasty of the Ancient Kingdom, or the dolmens of Karnak? In the Year of Our Lord 1950, how do you pass a lad of 19 or 20 through a mystic Ryder Haggard fire and reincarnate his soul in the Fifth Century BC? You just don't. You make passes before his eyes and say, "It's Periclean Greek. It's good because everybody says it is. Remember the words 'entasis,' 'peripteral hexastyle,' and 'Ictinus.' Quiz tomorrow, pages 72-127, Bannister Fletcher. Bring a neat tracing in ink of the Choragic Monument of Lysicrates."

You see, part of our problem is the horizon of experience of each student. In the teaching of music, a student plays music; in medicine, there are laboratories, operating theaters, and internships. In architecture, there is a faint similacritude of practice in the drafting room, but alas, you cannot move Chartres cathedral to the class or the class to the cathedral. No visual aid known to man can even approximate the astonishing architectural emotion created in being enveloped by the courts of the Alhambra; their smell, their noise, their color, their rhythms, and all the rest of the elements which make up that architecture. You have to be inside Chartres and for great lengths of time, to begin to understand it. The photograph has done architecture much harm in emphasizing the two dimensional quality of façade or surface. It is not the fault of photography, which is after all only the shadow of a building on a sensitized surface. There is no possible substitute for the building itself.

●

Now I just said that architectural history is taught in reverse. What is meant by that? This is really a simple thesis, but it is contrary to accepted formulas and had better be explained.

There are 10 kinds, classes, categories, functions, or types of architecture. James Fitch, in his excellent *American Building* (pages 310-311), suggests 14. I'll stick to 10 for now. These are, and in no particular order, the architecture of:

1. *Environment* (including cities and regions)
2. *Residence*
3. *Worship and Commemoration*
4. *Education*
5. *Health*
6. *Government and Protection*
7. *Work and Production*
8. *Transportation*
9. *Service and Commerce*
10. *Recreation and Enjoyment*

While there are, of course, many subheads, combinations, and exceptions,

(Continued on page 128)

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out of school

(Continued from page 126)

any building you know fundamentally fits into one of these 10 classifications. Now, assume that you are a student of architecture in Richmond, Virginia (I don't think there's a school there, so I'm safe). You have traveled only a short distance from home, perhaps as far as New York or Atlanta. Your visual and contact experience with architecture is largely limited to your home city. All 10 categories of building are to be found there or nearby. Let us take Transportation as an example. There are two railway stations, one domed and columned like the Columbia University Library, the other a ramshackle Victorian Gothic (?) job, also of mixed design ancestry. There is an airport, there are a couple of bus terminals, there are docks on the James. There are filling stations, service stations, bridges, roads, repair yards, and innumerable appendices to the whole architectural world that supports transportation.

Where did they come from? Why are they here? Why do they look the way they do? History of architecture, to you in Richmond, could so easily begin with what you know and feel. I could work you back to early railroad buildings in Virginia, the canals, the old inns, the English post inns, bridges and roads of Rome, the Pharos at Alexandria and the Harbor at Ostia. You would be interested, too, because you began with what you know and, to a degree, understand. And while the dome on the railroad station had its origin in a building for worship and burial, still it is useful as a place in which to study the esthetics and construction of hemispheres.

Knowing that Romanesque preceded Gothic Architecture I suppose is as important a part of an architect's knowledge as a well-pressed pair of pants is to his personal pride. It certainly doesn't affect his practice any more than does the crease in his pants affect the function of the pants. I have yet to see an architect refuse to do a Gothic or even a Georgian church because he had not yet done a Romanesque one. And the jumble of styles to be found along Monument Avenue in Richmond, or any other street in any other American city, indicates clearly enough that any knowledge of historical sequence learned in the lecture room was relegated automatically to limbo.

What happened was that history became a grab-bag and the classroom lent itself, not to new ideas but to a knowledge of where old ideas could be most easily found for imitation or conversion. Architectural history, easily perverted, thus lost its integrity as a valid, living entity. The creativeness which should be the result of historical events, the culmination of experiences, and the outgrowth of the rich soil of past cultures became eclectic and lifeless. Standard textbooks, the few available, make little effort to explain how history should be understood and used, nor do they mention its misuse. It would be unpopular but honest to say that here in America standard methods of teaching the history of architecture have been harmful to the creation of sound American architecture. The results speak for themselves.

Now maybe you don't believe *beginning with what we have and that with which we have a familiarity* will solve the problem, assuming that the teaching of history is still necessary. Think about it a bit. What about the Colonial Church down the street? Why is it there? Where did it come from? Does it solve the problems of worship? Is there reason, emotion, or reasoned emotion in the choice of style over other considerations? Or were there no other considerations? Working back from that church to its historical antecedents, to Wren and the renaissance campaniles, medieval towers, and Roman tombs is

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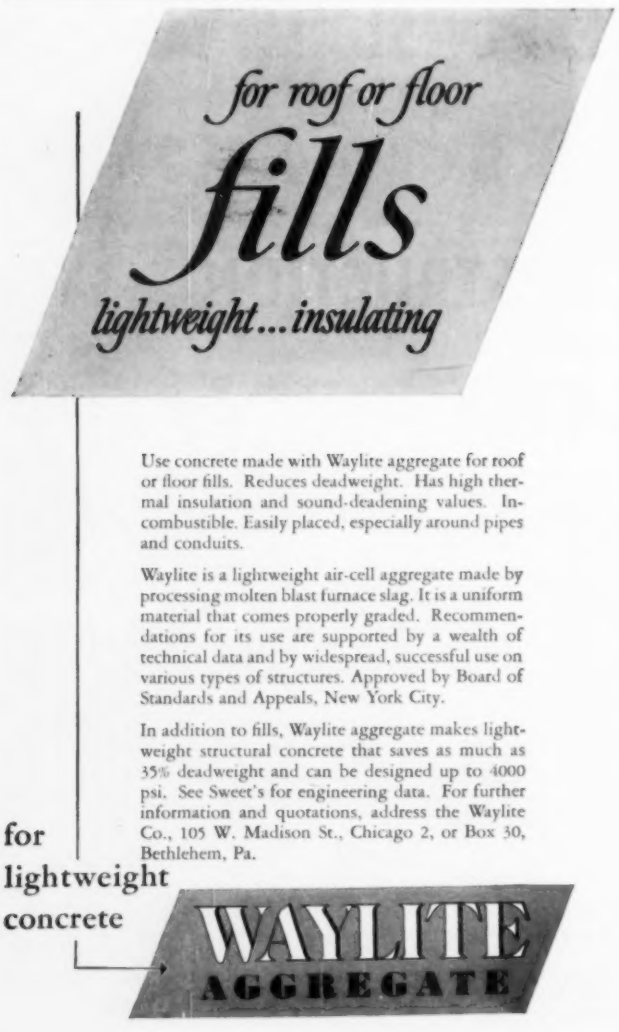

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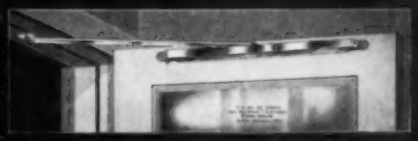

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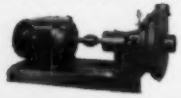

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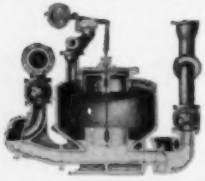

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out of school

(Continued from page 128)

easy. The important thing is to know why the building is where it is now and in its present form, in order that you may be better able to decide what step to take when next you build.

●

History, once learned, is hard to forget. Traditions and memories may be of great benefit or they may set up tabus and rituals of greater harm than complete forgetfulness. If Williamsburg, Virginia, is used incorrectly, and we are already seeing evidence that it is being cheaply imitated in the usual manner, perhaps it would have been better to have left the bones of the old town to rot away in gentle and honored peace. Dean Hudnut recently spoke on how *not* to use Williamsburg. But to the great American Public, trained to follow historical styles by architects trained in the misuse of architectural history, there is a clear course to follow. And copying is so easy.

How would you prepare a textbook for a course in history which begins today and works back through time? I would base it on the 10 or 14 categories of architecture and show by a manual of teaching methods how to apply or dovetail the analysis of local or known structures into each category and sequence. Experience with known structures makes their antecedents interesting even though far away or even destroyed. While the local town hall may not compare too favorably with Michaelangelo's capitol in Rome, the clear reason for a locale for government and the sources of plan purpose can go a long way in achieving a value judgment. If, when and as the opportunity affords, this approach could give the architect a chance to prove that he can create, not from a vacuum, but out of the context of historical understanding. The text to achieve this, would then have a purpose.

In a nutshell, it is the lack of real purpose that has made the teaching of architectural history in our schools such a failure. The teaching of architectural history can have three legitimate purposes. One is for the training of the historian and specialist, one is for the general cultural background and informational maturing of the professional student, and one is for the study of the application of our historical genesis to the sound practice of architecture. While these three purposes may be combined in any way desirable in a curriculum, it is the responsibility of the teacher to clarify them so that there can be no confusion in a student's mind as to their use.

There is no question in my mind that comprehensive architectural history

(Continued on page 134)

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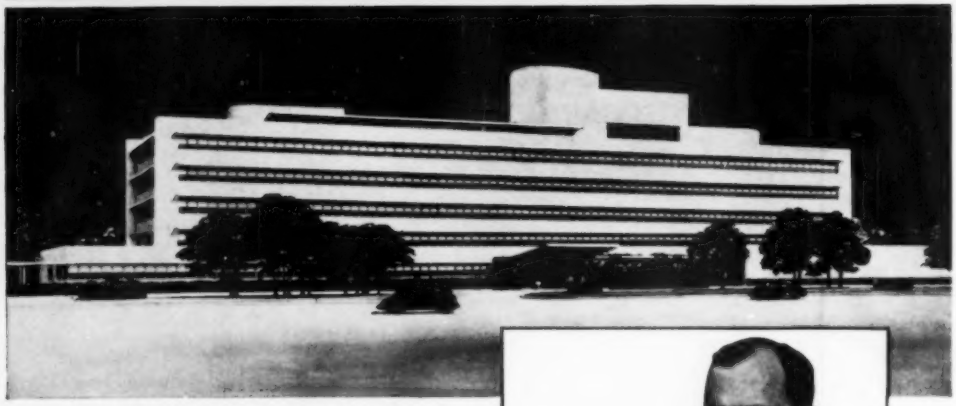

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ARCHITECT:
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Associated—Carson and Lundin, New York
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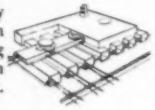

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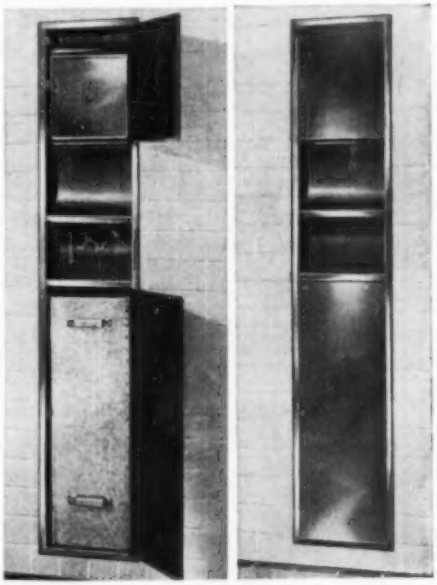

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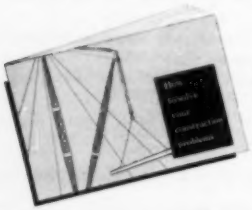

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out of school

(Continued from page 130)

should be taught and no question, either, that it can be taught well. However, it cannot be taught in an intellectual vacuum and I urge that it, as a most significant part of our training process, be reconsidered by all of you in light of the changes which have taken place in recent years in the professional requirements of the architect and his position in his community.

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CLAUDE R. CATO, BURTON L. AUSTIN and JACK W. EVANS of the office of LAMAR Q. CATO, Architects, announce that the name of the firm has been changed to CATO, AUSTIN & EVANS, Architects, 2103 Crawford, Houston 3, Texas.

WILLIAM DEAN FAINT, Architect-Engineer, 1915 Browning Rd., Pennsauken, N. J., formerly W. D. Faint & Co., Professional Engineers.

ALCOX & STRITZEL, Architects, announce the dissolution of their partnership, and the continuance of FREDERICK STRITZEL in practice at 539 E. Town St., Columbus, Ohio.

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WURDEMAN & BECKET, Architects, Los Angeles, announce the opening of a branch office in San Francisco, at 507 Howard St., to be headed by FIRMAN MEYERS and GRISWOLD RAETZE, Architects.

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it's the law

By BERNARD TOMSON

How can a municipality legally insist upon an esthetic approach to zoning? *This* column will not discuss esthetics as such! Parenthetically it should be pointed out, however, that there must be considered by the realistic community planner, in addition to the architects' different and often divergent esthetic concepts, the concepts held by laymen, whose views often conform to no principle expressed by any highly regarded architectural expert. (See Scarsdale Ordinance discussed below.)

Population increase and expanding housing activity in suburban areas have prompted many communities to enact zoning laws regulating the character of residential development. Such zoning constitutes an attempt by these communities to preserve for their residents the advantages of a distinctive and attractive rural environment. (See this column in May 1950 **P/A**, which considered the extent a municipality may limit the minimum area upon which a dwelling may be constructed.)

The courts have traditionally looked upon zoning restrictions as a permitted exercise of the police power only where they tend to promote the "public health, morals, and safety." The rule has been well established that the police power cannot be validly exercised where its purpose is esthetic or artistic, yet compelling public pressure has been exerted both upon the legislatures and courts to approve zoning laws, the enactment of which has been motivated by esthetic considerations. The courts have not resisted this demand entirely and recent decisions tend to uphold such legislation. Nevertheless, the time-honored legal criteria have caused the courts considerable difficulty in rationalizing decisions, when they have approved in principle the endeavor of communities to promote esthetic and property values and have found their application reasonable. Decisions written in terms of health, morals, and safety concepts bear no immediate relation to the objectives of present day zoning legislation.

The insistence of residential dwellers that esthetic and property values are important and should be recognized has already compelled a few legislatures and courts to approach this issue more candidly and realistically.

•

A law recently enacted by the legislative authority of a New York village illustrates the effective pressure which public demand can bring to bear on the legislative authority to enact a law to promote esthetic and artistic development of residential construction in the community. The Village of Scarsdale has enacted a law designed to prohibit the construction of homes that look alike in the same residential neighborhood. Uniformity in the exterior design and appearance of neighboring dwellings, the law states, "adversely affects the desirability of immediate and neighboring areas for residence purposes and by so doing impairs the benefits of occupancy of existing property in such areas, impairs the stability and value of both improved and unimproved real property in such areas, prevents the

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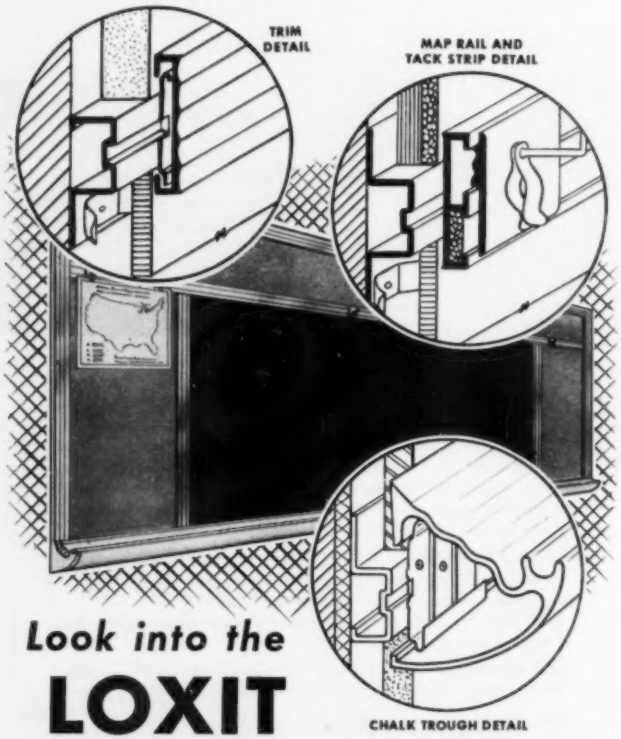

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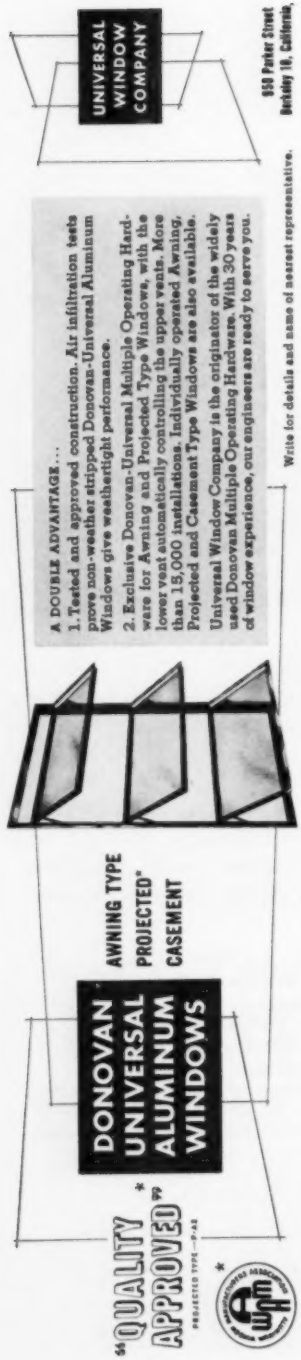
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it's the law

(Continued from page 136)

most appropriate use of such real property, prevents the most appropriate development of such areas, produces degeneration of residential property in such areas with attendant deterioration of conditions affecting the health, safety, and morals of the inhabitants thereof, deprives the municipality of tax revenue which it otherwise could receive and destroys a proper balance in relationship between the taxable value of real property in such areas and the cost of the municipal services provided therefore."

The indicia of such uniformity are detailed in Section 2 of the law, set forth below:

"Section 2. Except as provided in this local law, no building permit shall be issued under the Building Code of the Village for the erection of any building for occupancy as a dwelling for one or two families if it is like or substantially like any neighboring building, as hereinafter defined, then in existence or for which a building permit has been issued, in more than three of the following six respects:

(1) Height of the main roof ridge, or, in the case of a building with a flat roof, the highest point of the roof beams, above the elevation of the first floor;

(2) Height of the main roof ridge above the top of the plate (all flat roofs shall be deemed identical in this dimension);

(3) Length of the main roof ridge, or, in the case of a building with a flat roof, length of the main roof;

(4) Width between outside walls at the ends of the building measured under the main roof at right angles to the length thereof;

(5) Relative location of windows in the front elevation or in each of both side elevations with respect to each other and with respect to any door, chimney, porch or attached garage in the same elevation;

(6) In the front elevation, both (a) relative location with respect to each other of garage, if attached, porch, if any, and the remainder of the building, and (b) either (i) height of any portion of the building located outside the limits of the main roof, measured from the elevation of the first floor to the roof ridge, or, in the case of a flat roof, the highest point of the roof beams, or (ii) width of said portion of the building if it has a gable in the front elevation, otherwise length of said roof ridge or said flat roof in the front elevation.

"Buildings shall be deemed to be like each other in any dimension with respect to which the difference between them is not more than two feet. Buildings between which the only difference in relative location of elements is end to end or side to side reversal of elements shall be deemed to be like each other in relative location of such elements. In relation to the premises with

(Continued on page 140)

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it's the law

(Continued from page 138)

respect to which the permit is sought, a building shall be deemed to be a neighboring building if the lot upon which it or any part of it has been or will be erected is any one of the following lots, as shown on the tax map of the Village:

(a) Any lot on the street upon which the building to be erected on said premises would front which is the first or the second lot next along said street in either direction from said premises, without regard to intervening street lines;

(b) Any lot any part of the street line frontage of which is across said street from said premises or from a lot referred to in subparagraph (a) of this section;

(c) Any lot any part of the street line frontage of which faces the end of, and is within the width of, said street, if there are less than two lots between said premises and the end of said street;

(d) Any lot on another street which adjoins said premises on such other street; or

(e) Any lot any part of the street line frontage of which is across such other street from said premises or from a lot referred to in subparagraph (d) of this section; provided, however, that, notwithstanding any of the foregoing provisions of this section, no building shall be deemed to be a neighboring building in relation to said premises if its rear elevation faces the street upon which the building to be erected on said premises would front."

Provision is made for review of the denial of a permit by the Building Inspector by appeal to a Building Board, composed of three residents of the community, at least one of whom is to be an architect.

●

Whether the above ordinance will be upheld if its validity is attacked in a law suit is not now determinable. The law undoubtedly contemplates a far-reaching exercise of the police power. No substantially similar enactment from which a comparison could be drawn has yet been before the courts. However, a review of some of the legal criteria used in zoning cases furnishes a mass of precedent opposed to the recognition of a law, the enactment of which is motivated by esthetic considerations.

The law is well settled that the police power cannot be exercised for purely esthetic or artistic purposes. The rule has been stated thus:

"While the promotion of esthetic or artistic considerations is a proper object of governmental care, these considerations alone will not justify, as an exercise of the police power, a radical

(Continued on page 142)

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it's the law

(Continued from page 140)

restriction of the right of the owner of property to use his property in an ordinary and beneficial way."

A Michigan court has more recently expressed a similar attitute (*Senefsky* v. *Huntington Woods*). In that case the court denied the validity of a zoning provision which prescribed a minimum floor area of 1,300 square feet for any proposed building to be constructed in a given subdivision. Concerning testimony given at the trial to the effect that the moving consideration for the passage of the ordinance was the promotion of property value of persons who already lived in the section, the court said:

"Esthetics may be an incident but cannot be the moving factor in enforcing police power restrictions. Likewise, it may be said that preservation or enhancing the values of other property in a given zone may be an incident but cannot be the moving factor."

●

The courts have not only ruled out esthetics as a proper consideration, but have also expressed concern that zoning laws must promote the "public health, safety, and morals." The liberal application of such a criterion has probably resulted in the invalidation of ordinances which have benefited the community though induced by esthetic considerations. The Michigan court specifically stated that the zoning ordinance in no way promoted or protected in the subdivision the health, safety, morals or welfare.

A similar attitude is illustrated in a Maryland case (*Byren* v. *Maryland Realty Co.*), which involved a zoning law providing that within a defined section of Baltimore no dwellings could be erected unless constructed as separate and unattached buildings and located 20-feet apart, if of frame construction, and 10-feet apart, if of stone or brick construction. A real estate corporation proposed to improve a lot in this section by constructing semi-detached two-story brick dwellings, with a distance of eight feet between each pair of houses. The court found there would be nothing inherently dangerous to the public safety or the public health in properly constructed semi-detached brick houses. It agreed that the proposed housing development would undoubtedly depreciate to some extent the value of some property but the court decided that neither it nor the legislature had power to prevent the construction. It stated:

"The Act does not relate to the police power and its enforcement would deprive the appellee of property rights guaranteed by the Constitution, which cannot be invaded for purely esthetic purposes under the guise of police power."

(To be continued)

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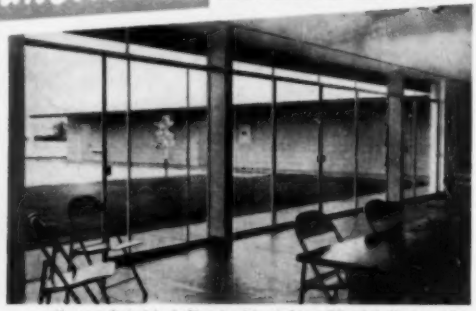

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WILLIAM CHARNEY VLADECK and SEYMOUR R. JOSEPH announce their association under the firm name of JOSEPH & VLADECK, Architects, 1841 Broadway, New York, N. Y.

PHILIP W. BOURNE, NEIL A. CONNOR, G. SETH NICHOLS, G. CLARKE WHITING announce the formation of the new firm of BOURNE, CONNOR, NICHOLS & WHITING, Architects, Engineers, Housing Consultants, 177 State St., Boston, Mass.

GORDON FERGUSON and DONALD P. STEVENS announce the formation of a partnership with MARTIN L. BECK, under the firm name of FERGUSON, STEVENS & BECK, 111 S. Amherst, Albuquerque, New M., and Radio Plaza, Room 10, Santa Fe, New M. Mr. Beck is in charge of the Santa Fe office.

JAMES NESSLY PORTER, Architect, 500 E. Fifth St., East Liverpool, Ohio.

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EMILY and HAROLD OBST, Architects, 289 Hibiscus Ave., Palm Beach, Fla.

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S. B. DAVIS, Builder, 212 S. Villa Ave., Villa Park, Ill.

A. QUINCY JONES, Architect, 8925 Beverley Blvd., Los Angeles 48, Calif.

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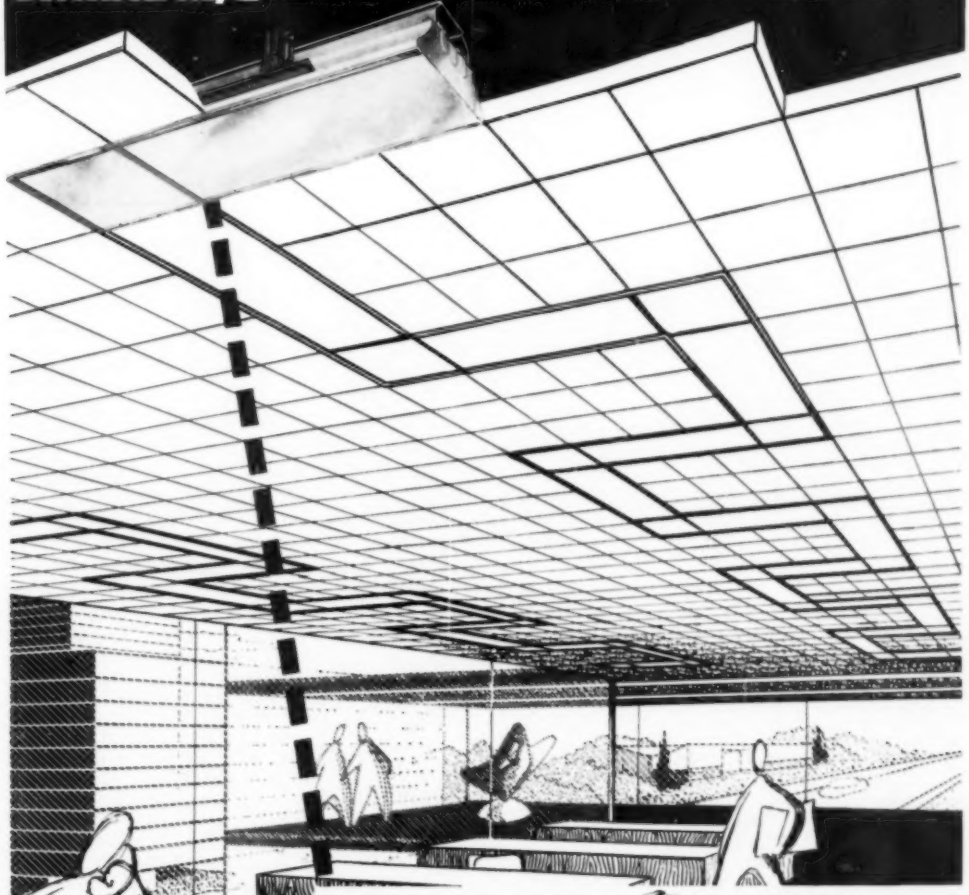

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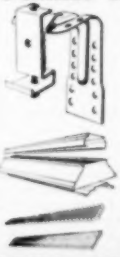

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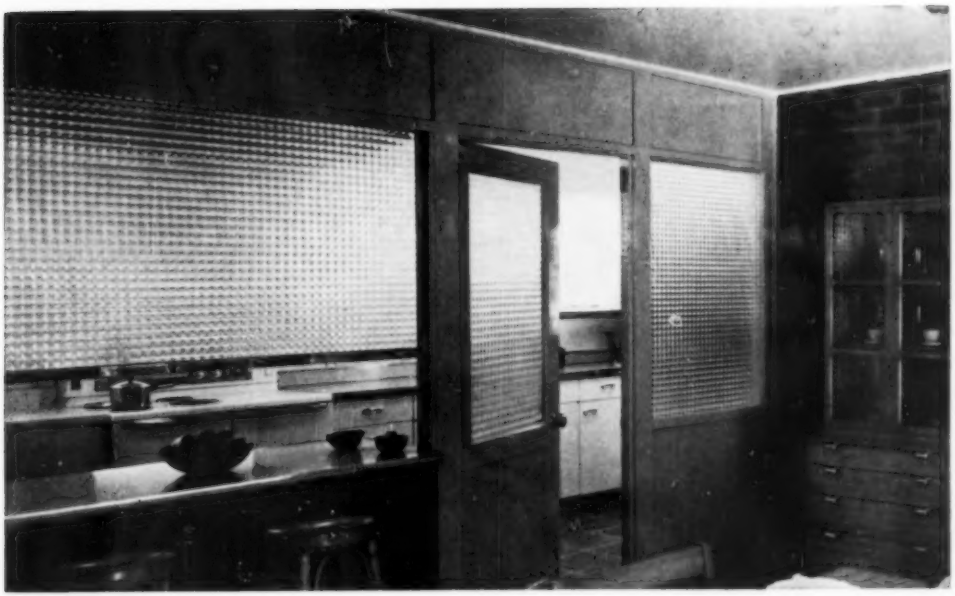

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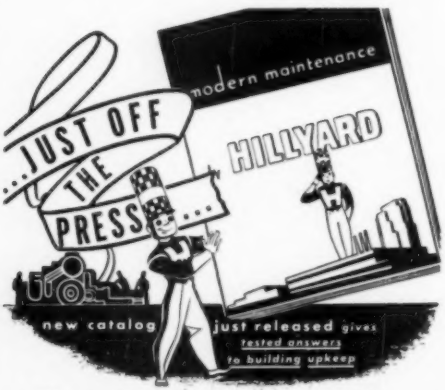

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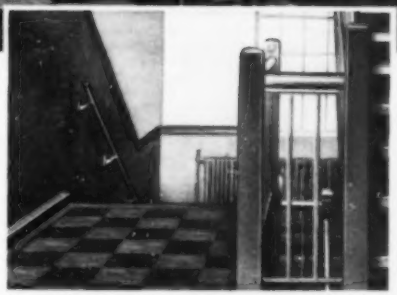

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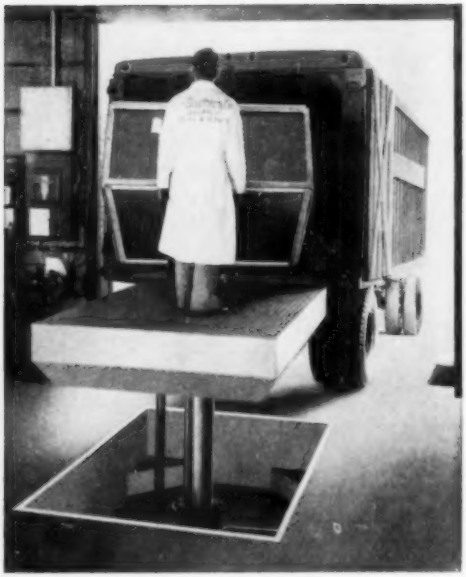

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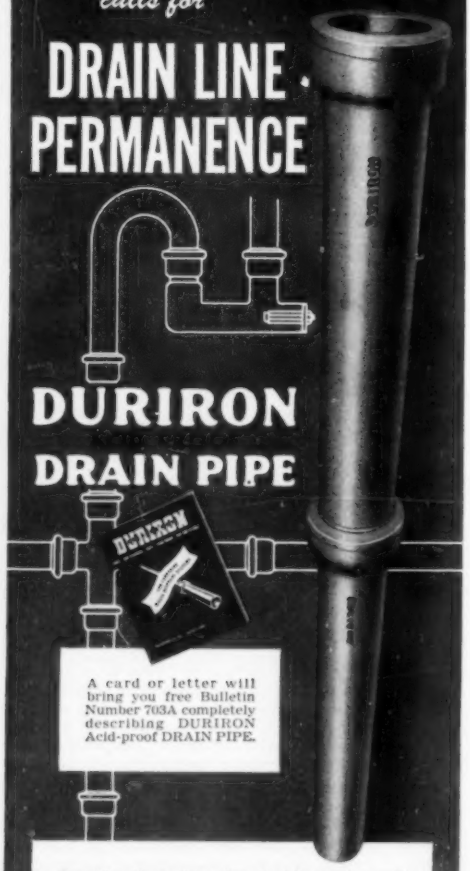

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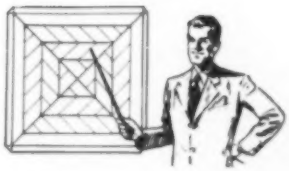

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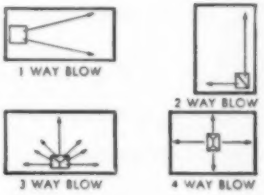

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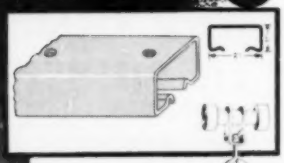

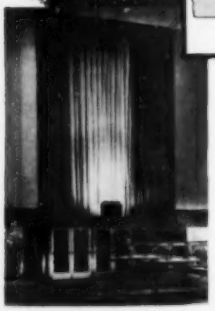

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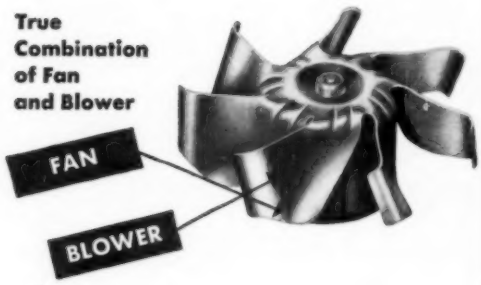

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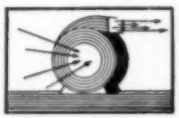

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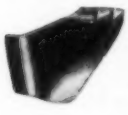

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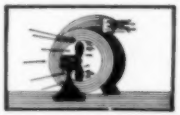

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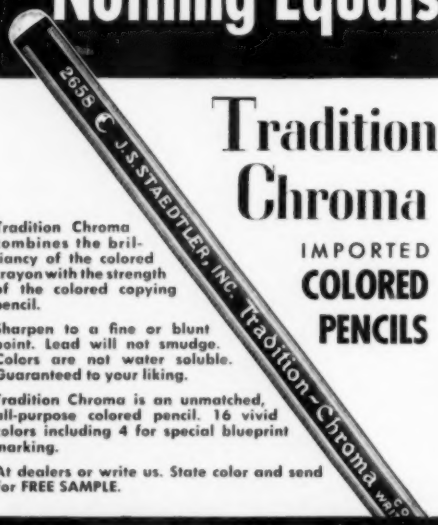

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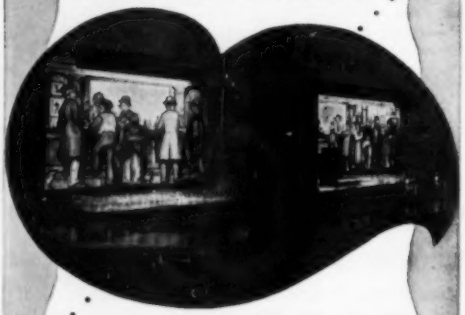

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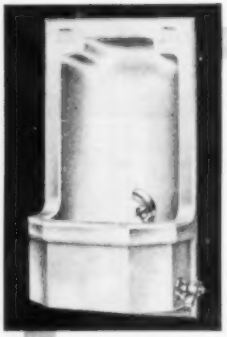

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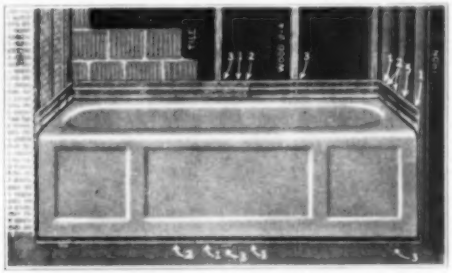

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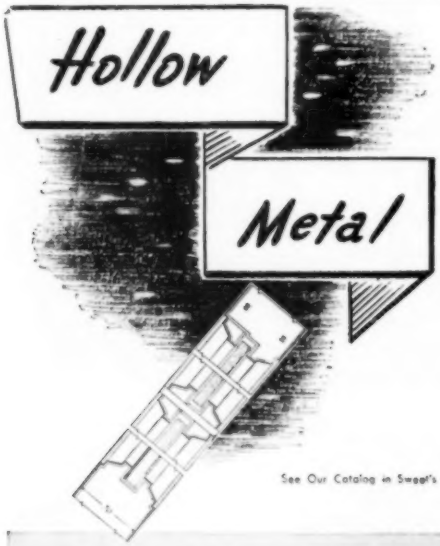

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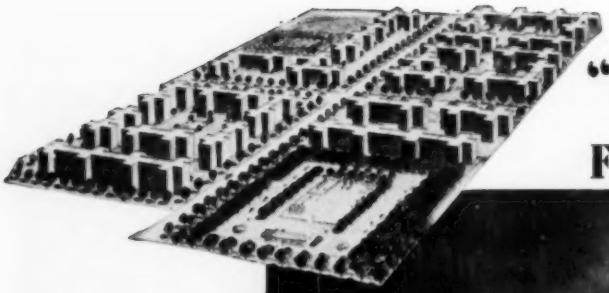

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• Superior resilience of studless 2" solid vermiculite plaster partitions to those made of sand plaster, was established recently through a series of impact tests conducted by the Detroit Building Trades School, at Detroit, Michigan. Two partitions, 8' high and 16' long, were tested; both were similarly constructed except that one was vermiculite plaster on gypsum lath, the other, sand plaster. These tests, made in accordance with standard procedure, require a partition to be struck four times at its center by a 60 lb. sandbag dropped from 30", 45", 60", and 90". During these four drops, no cracks should occur through which daylight can be seen; no loose material should result from the impacts; temporary deflection must not exceed 1⁄4 of the partition height; the permanent set of the partition must not be over 1/10 of 1⁄4 of the partition height—0.096" in this case. While both partitions passed these requirements, the sand partition showed a permanent set of 0.09" after the fourth drop, and the vermiculite partition showed none. Additional drops from the 90° position gave the vermiculite partition a permanent set of only .03, compared with 0.14" for the sand partition; and finally, though the vermiculite partition showed greater temporary deflection than the other, it was better able to regain its initial position.

• General Electric's Lamp Department has launched its four-year, nation-wide "Home Lighting Conditioning Program" campaign to provide better light for 40 million American homes. According to G-E spokesmen, "the average home is as far behind practical and desirable 1950 lighting standards as a wood-burning stove is behind an electric range." To remedy this backwoods situation, the program calls for the creation of 10,000 light-conditioned demonstration homes all over the country by the end of 1951—an average of one to every group of 4000 electric meters. These homes will be designed to show home owners some of the healthful and esthetic benefits of better lighting as well as to stimulate the nation's lighting industry. Demonstrations will be built on a scientific foundation of specific lighting formulas prepared by G-E home lighting authorities, and filling the lighting needs revealed by extensive research just completed by the Residential Lighting Committee of the Illuminating Engineering Society. Local electric service companies, operative home builders, lighting fixture manufacturers, and retail stores will be asked to organize, co-ordinate, and operate these exhibition homes as a service to the home owners in their communities, under the guidance of General Electric.

• Encouraged by the warm response in the European press to the "Good Design" exhibitions at the Merchandise Mart in Chicago, the Museum of Modern Art of New York has organized and produced the first large exhibition of American home furnishings to tour the principal cities of Europe and Great Britain. "Design for Use," as the exhibition is to be called, will represent the best and most progressive achievement in American home design, expressed in some 500 items such as furniture, fabrics, lamps, pottery, glassware, floor coverings, luggage, decorative and personal accessories. Its first stop is scheduled for early next year at the Lendesgewerbemuseum in Stuttgart.

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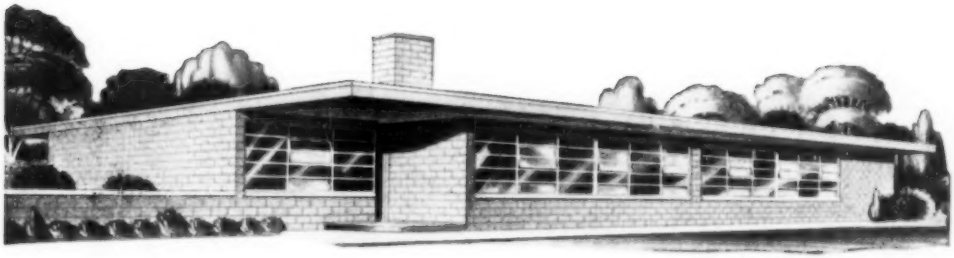

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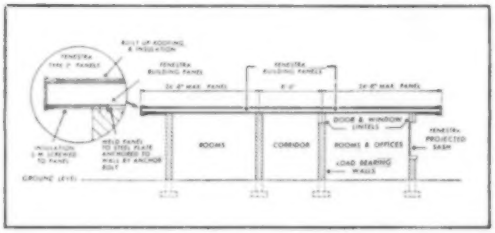

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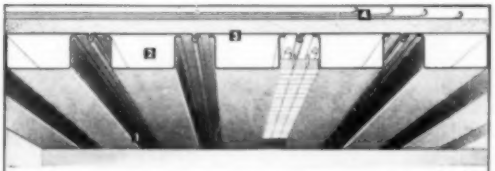

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P.S.

I AM VERY SORRY that I confused a number of my dear constant readers last month by referring to the Saarinen designs "which we publish this month" a month before we actually published them. Actually, I am just surprised that I haven't done that sort of thing before—and the only reason that I haven't is that we have some pretty efficient proofreaders on P/A. But last month we all got lost in time and space —and architecture.

You see, working on a monthly magazine means that you are continually living in a time several months ahead of what the calendar says. If you were to sneak up behind me right now and ask me what month it was, I couldn't tell you. (Actually I could. I know perfectly well that it's December.) At the moment we are working avidly on the January 1951, issue, and are making fairly definite plans for months as far ahead as June next year.

Adding to the confusion is the fact that several months are converging on us at the same time. You normal happy people know that when it's the 10th of the month, it's the 10th of one specific month, but for us the 10th means certain things to be done, or started, or completed, on at least four different months' work. When I write the P.S. page for a given issue (as, for instance, I am now writing this one for—don't confuse me, I know perfectly what month it's for—October) at that same time the main body of copy is being written for a month ahead of that, the engravings are being made for a month ahead of *that*, layout is being prepared for a month ahead of *that*, and our preplanning staff (274 junior associate editors, who sit down at a small round table every Tuesday afternoon at 4 o'clock) is way off in the dream world of mid-1951.

So I'm sorry that I slipped and wrote a postscript for the Drake University job, which appears in *this* issue (please check that, Miss McCullough). I should have known better. It's just the month that I have trouble with; the years I keep perfectly straight. I know with a great certainty, for instance, that this is still 1951, and that 1952 doesn't begin until next January.

●

I'M ALWAYS CURIOUS about what readers read. For some reason or other my note about Max Conrad, the senior Minneapolis-Honeywell pilot who flew a Piper Cub to Switzerland to see his family, attracted more interest (judging from the correspondence I received) than any of my recent pronouncements on the state of architecture. Evidently it was a story that appealed to the general press, also, because any number of people clipped progress reports from their local papers and sent them to me. So I am happy to report that this first Atlantic round-trip flight in a light plane was a complete success; he is happily back in Minneapolis (or wherever M-H has asked him to fly the senior vice-president in charge of the middle south-east district). And his family has also arrived. Please don't picture the nine children climbing out of the Cub—they came by boat.

●

BERNIE TOMSON, in his IT'S THE LAW column, begins this month and continues next month (please check that one, too, Miss McCullough) a legal discussion of the Scarsdale ordinance that attempts to regulate esthetics, and several other recent legal pronouncements on the same subject.

Aside from the legal aspects, it seems to me that the philosophical questions raised are interesting. For instance, one judge said solemnly that "the beauty of a residential neighborhood tends to the comfort and happiness of the people of a community." This immediately raises several interesting questions. In the first place, what is beauty? Adelbert Ames and others have been trying for a long while to determine what produces a pleasant esthetic experience and why. Association, relation to use-values, one's judgment of physical relative, and many other things go to make up the reaction which is beneficial in the sense of producing useful action (as well as "comfort and happiness") so far as they have been able to determine. So the good judge is probably right when he makes his comment, but it is almost as meaningless as saying that "people should be good."

So it seems to me that the village fathers of Scarsdale, N. Y., are on dangerous ground when they legislate in a manner which they believe will control esthetics favorably, and thus decide for their constituents what makes a beautiful neighborhood and presumably, a happy neighborhood. The Scarsdale assumption is, again, that ugly surroundings produce deleterious effects on the inhabitants in the way of "health, safety, morals and general welfare." But it goes further and dares to *define* the factors that produce an ugly neighborhood. These factors can evidently be measured, from the ridges, plates, beams, and sills of buildings. The cause of ugliness, the Law says, is uniformity. Ugliness produces ill-health and bad morals. Hence uniformity must produce ill-health and bad morals. Hence all houses close together must have different dimensions in certain measurable terms.

It would be very easy to poke fun at this assumption and its implementation in law. Little men careening home arm-in-arm, drunker than they should be, all because their neighboring houses are the same in width between outside walls at the ends of the buildings measured under the main roof at right angles to the length thereof. Perhaps this oversimplified picture points up the error in the legal assumption: it is perfectly possible to imagine people taking to drink or otherwise licentious living because they live in a drab, dull neighborhood; but the drabness and the dullness, I feel sure, would result from inept design, and not from uniformity per se. The Scarsdale moralists are perfectly correct in realizing that many of today's subdivisions are both uniform and ugly. But they overlook the fact that architectural history is replete with instances of skillful, handsome uniformity, of infinite diversity within the discipline of a uniform module, of what Walter Gropius has called "the sobering and co-ordinating effect" of the repetition of standardized elements. To choose one instance in history, there is the "row house" design in London's Regent Park —Park Crescent, for example, designed by John Nash about 1812. He would have been restrained by the Scarsdale provision against similarity in relative location of windows in the front elevation with respect to each other and with respect to any door, chimney, etc. To pick another example, Percier and Fontaine could not have built the uniform houses in the Rue de Rivoli in the 1820's if they had been required to maintain differences in the height of the main roof ridge above the top of the plate, in order to achieve the Scarsdale definition of beauty.

I agree with friend Tomson that zoning regulations which are presumably based on consideration of public health and safety "bear no immediate relation to the objectives of present-day zoning legislation." They are, in fact, hypocritical, because everyone knows that considerations of pleasant living, emotional stability and the "beauty" of the neighborhood, in addition to questions of function and communication and transportation are the real reasons for the good community planning which zoning regulations strive to produce. But when lay people, whose knowledge of what produces a truly pleasant physical environment is limited entirely by their very limited knowledge of town planning and building design, begin legislating on questions of esthetics, it seems to me that the result, as in the case of the Scarsdale dogma, is likely to be way off the beam.

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